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ABSTRACT

This document contains the proceedings from the Conference of State and Territorial Public Health Nutrition Directors and Faculties of Graduate Programs in Public Health Nutrition designed to improve participants' proficiency in data management. It includes an introduction by Mildred Kaufman, a conference agenda, and the following presentations: (1) "Demystifying Data" (Jerianne Heimendinger and Judith Brown); (2) "Nutrition Services in State and Local Public Health Agencies--1985 Preliminary Report of State Survey" (Mildred Kaufman); (3) "Objectives for the Nation: Where Are We in 1985?" (J. Michael McGinnis); (4) "Data Needs To Measure State and Local Program Accomplishments within the Context of Monitoring the Objectives for the Nation" (Mary Peoples-Sheps); (5) "Available National Health and Nutrition Data Bases Useful for Nutrition" (Mary Grace Kovar); (6) "Use and Availability of National Health and Health and Nutrition Examination Survey (NHANES)" (Robert Murphy); (7) "USDA'S National Nutrient Data Bank and Nationwide Food Consumption Surveys" (Betty Peterkin); (8) "Association of State and Territorial Health Officials Foundation Reporting System" (Sue Madden, Mary Beth Kough, and Emily Brandenfels); (9) "Open Forum for Participants and Speakers--Question/Response" (Molly Graber); (10) "The North Carolina Approach to Using Data for Community Diagnosis and Program Development" (Charles Rothwell); (11) "Current Status of 1985 Recommended Dietary Allowances and Potential Uses for Setting Public Health Nutrition Policy" (Henry Kamis); (12) "Met and Unmet Data Needs in Nutrition Status Monitoring: Where Are We from the National Perspective?" (Grace Ostenso); (13) "State-Centers for Disease

Control Partnerships--CDC Nutrition Surveillance Systems" (Frederick Trowbridge); (14) "Effective Application and Utilization of Data Available for Program Management" (Sheryl Lee and Faye Wong); (15) "Turning Data into Gold" (Susan Foerster); (16) "Private Sector Resources" (J. Michael McKechnie); (17) "Public Sector Resources for Financing Nutrition Services" (Claude Earl Fox and Agnes Hinton); and (18) "Turning Data into Gold" (Jeffrey Taylor). Observations from state and local health agencies are given by Janice Dodds (New York), Nancy Robinett-Weiss (Texas), and Katherine Cairns (St. Paul/Ramsey County, Minnesota). A section on Work Group Reports: Measuring Achievement of the 1990 Health Promotion/Disease Prevention Objectives for the Nation at State and Local Levels includes reports in nine areas of health promotion. Concluding remarks, lists of program participants, and 55 figures are included. (NB)

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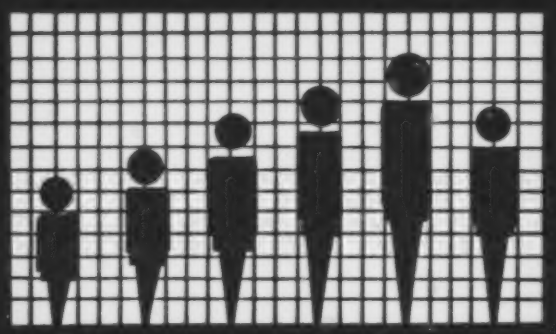

"DEMYSTIFYING DATA: DATA USE IN STATE AND LOCAL PUBLIC HEALTH NUTRITION PROGRAMS — MEASURING ACHIEVEMENT OF THE 1990 HEALTH PROMOTION/DISEASE PREVENTION OBJECTIVES FOR THE NATION"

Proceedings

CONFERENCE OF
STATE AND TERRITORIAL
PUBLIC HEALTH NUTRITION DIRECTORS
and

FACULTIES OF GRADUATE
PROGRAMS IN
PUBLIC HEALTH NUTRITION

MAY 21-24, 1985
CHAPEL HILL, NORTH CAROLINA

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DEMYSTIFYING DATA:

Data Use in State and Local Public Health Nutrition Programs Measuring Achievement of The 1990 Health Promotion/Disease Prevention Objectives for the Nation

Proceedings of the
Continuing Education Conference
for the Association of State and Territorial
Public Health Nutrition Directors
and
Association of Faculties of Graduate Programs
in Public Health Nutrition

Chapel Hill, North Carolina
May 21-24, 1985

Compiled and Edited
by
Mildred Kaufman, RD, MS
Associate Professor
Department of Nutrition
School of Public Health
University of North Carolina
Chapel Hill, North Carolina
1985

Conference was made possible by the Maternal and Child Health Training Grant (MCT 5-0-401-4660-38029-6991) to the Department of Nutrition, School of Public Health, The University of North Carolina at Chapel Hill from the Division of Maternal and Child Health, Bureau of Health Care Delivery and Assistance, Health Services and Resource Administration, Public Health Service, U.S. Department of Health and Human Services, Rockville, Maryland.

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This Conference is made possible by the Maternal and Child Health Training Grant (MCT 5-0-401-4660-38029-6991) to the Department of Nutrition, School of Public Health, The University of North Carolina at Chapel Hill, from the Division of Maternal and Child Health, Bureau of Health Care Delivery and Assistance, Health Services and Resources Administration, Public Health Service, U.S. Department of Health and Human Services, Rockville, Maryland. The vision and guidance of Mary C. Egan and Ann Prendergast facilitated this conference and Ms. Prendergast's continuing support and advice was greatly appreciated.

The initial need for this conference was clearly articulated by Harriette Duncan, Immediate Past President, Amy Anderson, President and Susan Foerster, President-Elect of the Association of State and Territorial Public Health Nutrition Directors. The program was developed from the interests stated by the ASTPHND Committee on Data and Epidemeology chaired by Ms. Foerster. The program was planned by the creative and task directed Program Planning Committee in a one and a half day meeting in May, 1984. The committee specified the program objectives, identified the topics and suggested the speakers.

The Program Planning Committee were as follows:

Faculty of Graduate Programs in Public Health Nutrition

- Mildred Kaufman, MS, RD, Conference Chairperson, Associate Professor, Department of Nutrition, School of Public Health, University of North Carolina at Chapel Hill.
- Joseph C. Edozien, MD, Chairman, Department of Nutrition, School of Public Health, University of North Carolina at Chapel Hill.

Association of State and Territorial Public Health Nutrition Directors

- Harriette Duncan, PhD, MPH, RD, formerly Director, Office of Public Health Nutrition, South Carolina Department of Health and Environmental Control.
- Jerianne Heimendinger, DSc, MPH, formerly Director of Nutrition Services, Division of Family Health, Rhode Island Department of Health.
- Rose Ann Langham, DrPH, RD, formerly Administrator, Nutrition Section, Louisiana Department of Health and Human Services, Office of Health Services and Environmental Quality.

Division of Maternal and Child Health, PHS, DHHS

- E. Ann Prendergast, MPH, RD, Chief Nutritionist, Division of Maternal and Child Health, Public Health Service, Department of Health and Human Service.

State Directors of Maternal and Child Health

- Elin Holgren, MPH, RN, Director, Maternity/Family Planning Branch, Mississippi State Board of Health.
- Verna Barefoot, MD, MPH, formerly Chief, Maternal and Child Care Section, Division of Health Services, North Carolina Department of Human Resources.

Office of Continuing Education, UNC-CH School of Public Health

- William H. Browder, Jr., MPA, Associate Director for Continuing Education.
- Susan S. Pezeshki, BA, Program Assistant.
- Mary Vilas, MEd, Information and Communications Specialist.

Profound gratitude is expressed to William Browder, Susan Pezeshki and the staff of the School of Public Health, Office of Continuing Education for efficiently managing the conference arrangements. Ms. Pezeshki skillfully handled the extensive and complex correspondence with speakers and participants, supervised registration and handled numerous administrative details. Ms. Pauline Kopec, Business Manager, Department of Nutrition handled the budget.

An important input into the conference was the survey of the state/territorial nutrition directors. Appreciation is expressed to the ASTPHND Data and Epidemiology Committee, particularly Susan Foerster and Jerrianne Heimendinger for designing the survey questionnaire, Mary Ann Carroll, MPH Student and Joy Wood, Department of Nutrition Computer Programmer for collaborating on designing tables and data management, Ms. Pezeshki for typing the complex questionnaire and Barbra Bucci and her staff of Byte Type Services for preparing the summary tables as well as for typing the transcription of papers and these proceedings.

Thanks is expressed to Barbara Ann Hughes for assisting with local arrangements. Acknowledgements for their continuing assistance to Jo Anne Sharpe, Catering Director, Hotel Europa; and Jeriann Spring, Circle Travel, Inc.

Appreciation is expressed to all of the speakers who responded so graciously to the invitation to speak, presented informative and thought provoking papers and cooperated in preparing their papers for these Proceedings.

Last, but not least, many thanks to the conference participants including the state/territorial nutrition directors who conscientously responded 100% to the detailed and complex state survey. Those who attended the conference were attentive listeners and active in dialogue with speakers and in the work groups.

INTRODUCTION

Mildred Kaufman, RD, MS

Conference Coordinator

To improve their proficiency in data management, this Continuing Education Conference was planned to meet a need articulated by the Association of State and Territorial Public Health Nutrition Directors and Association of Faculties of Graduate Programs in Public Health Nutrition. As public and political concerns increasingly focus on the role of nutrition and diet in health promotion and disease prevention, public health nutrition program leaders are challenged to provide, manage and interpret data that demonstrates both cost benefits and cost effectiveness of nutrition services throughout the lifespan. At the request of the two cosponsoring organizations and with the support of the Division of Maternal and Child Health, Bureau of Health Care Delivery and Assistance, Health Service and Resources Administration, Public Health Service, Department of Health and Human Services, this conference was designed and implemented by the Department of Nutrition and Office of Continuing Education of the School of Public Health, University of North Carolina at Chapel Hill.

The two and a half day conference program was designed by the Planning Committee to achieve the following objectives. By the end of the conference participants should be able to:

- Identify and describe national data resources, their uses, potential uses, and limitations in public health nutrition program development especially as related to achievement of the 1990 Health Promotion/ Disease Prevention Objectives for the Nation.
- Understand how to gain access to and use available national, state and local data sources for program management.
- Identify a variety of available and potential resources for funding public health nutrition services.
- Enhance public health nutrition program development by networking with colleagues at the local, state, regional and national level.

Participants included state/territorial nutrition directors, one selected city/county public health nutrition director from each DHHS region, DHHS nutrition consultants, members and prospective members of the Association of Faculties of Graduate Programs in Public Health Nutrition and invited guests.

The program was planned to move in logical sequence with speakers invited to address the topics that would meet the stated objectives. Speakers included practicing public health nutritionists, and public

health nutrition educators who raised pertinent questions and/or described their successes and failures in data management. Nationally recognized speakers were resource persons expert in the areas of national objectives, pertinent data base management, funding sources for health and nutrition services and interpretation of data for policy development. Nine work groups discussed the 1990 Health Promotion/ Disease Prevention Objectives in nutrition and made recommendations regarding data public health nutritionists could use to monitor their achievement.

These Proceedings bring together the papers presented at the conference and the summaries of the work group deliberations. It was the consensus of the participants that this conference met its objectives and challenged them to review their documentation, accountability and appropriate use of data. The Proceedings should provide the reader with a useful reference regarding data management appropriate for public health nutrition programs.

This Continuing Education Conference is anticipated as the first of a bienniel series, to be designed to improve the managerial skills of public health nutrition program leadership.

Chapel Hill, NC
August, 1985

DEMYSTIFYING DATA:

Data Use In State And Local Public Health Nutrition Programs --
Measuring Achievement Of The 1990 Health Promotion/
Disease Prevention Objectives For The Nation

CONFERENCE AGENDA

Wednesday, May 22

8:30 - 9:30 AM Presiding: Ms. Barbara Ann Hughes

WELCOMES

Dr. Michel Ibrahim, Dean, School of Public Health
Dr. Joseph Edozien, Chairman, Dept. of Nutrition

DEMYSTIFYING DATA

- Questions to ask
- Packaging data for effective presentation
- How to identify funding sources

Speakers: Dr. Jerianne Heimendinger
Dr. Judith E. Brown

NUTRITION SERVICES IN STATE AND LOCAL PUBLIC HEALTH AGENCIES, 1985 -- PRELIMINARY REPORT OF STATE SURVEY

Speaker: Ms. Mildred Kaufman

9:30 - 10:15 AM OBJECTIVES FOR THE NATION: WHERE ARE WE IN 1985

- How are the national efforts being measured and monitored?
- From the federal perspective, what progress has been made toward achievement?
- What are the accomplishments of the Federal agencies? State and local agencies? Private sector?
- What data is being used specifically to measure achievement of the nutrition objectives?
- How can state and local public health nutrition directors contribute most effectively in working toward achievement of the objectives? (e.g. as individual states? as a national network?)

Speaker: Dr. J. Michael McGinnis

10:45 - 11:30 AM DATA NEEDS TO MEASURE STATE STATE AND LOCAL PROGRAM ACCOMPLISHMENTS WITHIN THE CONTEXT OF MONITORING THE OBJECTIVES FOR THE NATION

Presiding: Ms. Beth Duncan
Speaker: Dr. Mary D. Peoples-Sheps

11:30 - 12:30 PM REACTOR PANEL: OBSERVATIONS FROM STATE AND LOCAL HEALTH AGENCIES

- What data is available for our use?
- What do we do when we do not have all of the baseline data we need?

New York - Dr. Janice M. Dodds

Texas - Ms. Nancy Robinett-Weiss

St. Paul Ramsey County, Minnesota - Ms. Katherine A. Cairns

3:00 - 5:00 PM WORK GROUPS: MEASURING ACHIEVEMENT OF THE 1990 HEALTH PROMOTION/DISEASE PREVENTION OBJECTIVES FOR THE NATION

- Data Bases Useful for Program Evaluation
- Additional Data Needed

Facilitator: Ms. E. Ann Prendergast

Reducing Iron Deficiency Anemia During Pregnancy

Leader: Ms. Connie Lotz
Recorder: Dr. Lee Fleshood

Growth Retardation of Infants and Children

Leader: Ms. H. Mariel Caldwell
Recorder: Ms. Joan McGill

Obesity/Overweight

Leader: Ms. Jean Collins Sanford
Recorder: Ms. Connie Auran

Promoting Dietary Guidelines in Schools and Work Sites

Leader: Ms. R. LaJeune Bradford
Recorder: Ms. Gaye Joyner

Adult Serum Cholesterol

Leader: Mr. Frank Lo Giudice
Recorder: Ms. Sheryl L. Lee

Nutrition Education in School Health Education

Leader: Ms. Beth Duncan
Recorder: Dr. Mary Ann Farthing

Knowledge of Dietary Factors Related to Heart Disease, Hypertension, Dental Caries, and Cancer (Fat, Sodium, Sugar, Calories, Fiber)

Leader: Ms. Gladys Matthewson
Recorder: Dr. Juan Navia

Breastfeeding Promotion

Leader: Ms. M. Elizabeth Brannon
Recorder: Dr. Catherine Cowell

Nutrition Included in Health Professional Contacts

Leader: Ms. Colette Zyrkowski
Recorder: Ms. Adela Dolney

Thursday, May 23

8:30 - 10:30 AM AVAILABLE NATIONAL HEALTH AND NUTRITION DATA BASES

- How can national data sources be used by state and local nutrition program managers to monitor progress toward achieving the 1990 Objectives?
- With each data system what data are collected? What are the sample populations?
- How are decisions made on data to be collected/not collected?
- How can this data base be used to answer questions at the state or local level?
- How can state or local nutrition program managers gain access to the data?

Presiding: Dr. Frances Larkin

Available National Health and Nutrition Data Bases Useful for Nutrition

- Census Information
- Health and Vital Statistics
- Special Studies
- FDA (Total Diet Study and Multipurpose Consumer Study)

Speaker: Dr. Mary Grace Kovar

Uses and Availability of National Health and Nutrition Examination Data Survey (NHANES)

Speaker: Mr. Robert Murphy

USDA's Nutrient Data Bank and National Food Consumption Surveys

Speaker: Ms. Betty B. Peterkin

Association of State and Territorial Health Officials' Foundation Reporting System

Speaker: Ms. Sue Madden

10:50 - 11:20 AM THE NORTH CAROLINA APPROACH TO USING DATA FOR COMMUNITY DIAGNOSIS AND PROGRAM DEVELOPMENT

Presiding: Dr. Harriette Duncan
Speaker: Mr. Charles Rothwell

11:20 - NOON OPEN FORUM FOR PARTICIPANTS AND SPEAKERS

Participants interact with morning speakers on information that they need from these data bases and how these data can help answer their questions and needs at the state and local level.

Moderator: Ms. Susan Foerster
Recorder: Ms. Molly Graber

NOON - 1:30 PM LUNCHEON CURRENT STATUS OF NEW RECOMMENDED DIETARY ALLOWANCES AND POTENTIAL USES FOR SETTING PUBLIC HEALTH NUTRITION POLICY

Presiding: Dr. Joseph C. Edozien
Speaker: Dr. Henry Kamin

1:45 - 2:30 PM — MET AND UNMET DATA NEEDS IN NUTRITION STATUS MONITORING: WHERE ARE WE FROM THE NATIONAL PERSPECTIVE?

Presiding: Ms. Pat Elmer
Speaker: Dr. Grace L. Ostenso

2:30 - 3:15 PM — STATE/CENTERS FOR DISEASE CONTROL PARTNERSHIP -- CDC NUTRITION SURVEILLANCE SYSTEMS

Use as examples of available data bases. (Discussion of advantages and limitations, credibility and reliability.)

- Update on New Pediatric Standards
- Update on Pregnancy Surveillance
- Telephone Risk Survey
- High Risk Appraisals

Speaker: Dr. Frederick L. Trowbridge

3:45 - 5:00 PM — EFFECTIVE APPLICATION AND UTILIZATION OF DATA AVAILABLE FOR PROGRAM MANAGEMENT

- Uses and limitations of available data sources for monitoring malnutrition and nutrition/diet related health status of US populations.
- Appropriate interpretation of data.
- Information that is useful and interesting for case or clinical review vs. for program management.
- Graphic presentation of data.

Presiding: Mr. Ted Fairchild

Speakers: Ms. Sheryl L. Lee
Ms. Faye L. Wong

Friday, May 24

8:00 AM — GREETINGS AND COMMENTS FROM ASTHO

Speaker: Dr. Douglas S. Lloyd

Where is the Hidden Gold for Nutrition Services?

Moderator: Ms. Susan B. Foerster

8:30 - 9:30 AM PRIVATE SECTOR RESOURCES

- Third Party Reimbursement -- Private Insurors (including Blue Cross/Blue Shield)
- Grants
- Contracts
- Fee for Service
- Other

Speaker: Mr. Michael McKechnie

10:00 - 11:00 AM PUBLIC SECTOR RESOURCES FOR FINANCING NUTRITION SERVICES

- Federal Sources
  Block Grants
  Medicaid Waivers
  Medicare
  Special Purpose Grants
  USDA Funded Programs
- State and Local Revenue

Speaker: Dr. Claude Earl Fox

11:00 - 11:30 AM DISCUSSION

11:30 - 12:15 PM TURNING DATA INTO GOLD

Speaker: Dr. Jeffrey R. Taylor

12:15 - 12:45 PM CONCLUDING REMARKS

Speakers: Ms. Susan B. Foerster
Ms. Mary Nelle Traylor
Ms. E. Ann Prendergast

Recorder: Dr. Betsy Haughton

DEMYSTIFYING DATA

Jerianne Heimendinger, DSc, MPH

Introduction

Let me share with you why I think this conference is so significant. First , the creative thoughts and efforts of many individuals went into the year of planning the agenda. Special thanks go to the Planning Committee; the U.S. Department of Health and Human Services for funding; the University of North Carolina, specifically Mildred Kaufman and her colleagues for organizing and hosting the event; the officers of the Association of State and Territorial Public Health Nutrition Directors, and in particular, a special thanks to each of you, the members of the Association who took time from busy schedules to graciously complete a detailed survey, providing a significant data base for this conference.

The completed survey is an example of how we can turn data into gold -- the theme of the last day of the conference. The survey is highly significant because the response rate was 100 percent! Therefore, we have an unprecedented baseline of information on nutrition personnel, services, and data availability in state and local agencies. You are to be congratulated for your part in this excellent achievement.

We have planned a forum for your creative input. We have asked each state and local representative to come prepared with data issues. Representatives from the national data bases are here to brainstorm with us. We have the survey information which describes the status of data availability and use in State agencies. We have the organizing rubric of the Objectives for the Nation to focus our data discussions. Nine work groups will brainstorm and prepare to interact with the national representatives. Each work group will address the issue of a minimum or model data set for measuring preventive health progress in subject areas such as iron deficiency anemia and obesity.

After your work groups have had an opportunity to discuss such issues as what data are available and what are needed, you should be better prepared to participate in an informed discussion with the national representatives. For example, how can states use the results of the national surveys? Is there a way states could assist survey teams to help obtain data relevant to state needs? What kinds of federal/state partnerships or communications networks might we develop? Think of specific questions you might like addressed in open discussion.

We are expecting creative results from this conference and encourage each of you to be a full participant. Each of you has something to contribute from your own experience no matter how new you are at your job. Please don't hesitate to throw your thoughts and questions into the crucible so that we may produce the most creative outcomes. This is your conference, planned to meet your needs. We are here to demystify data together.

Objectives for the Nation

Promoting Health, Preventing Disease; Objectives for the Nation, published in 1980, is a federal publication which has been particularly valuable as a means of focusing disparate state and local efforts in the areas of prevention or wellness, as well as illuminating areas which lack adequate data for measuring achievements in prevention. Objectives for the Nation provides measurable objectives to be accomplished by 1990 for 15 priority areas, including nutrition. It includes 17 objectives in the Nutrition Section, and 12 other relevant objectives in 6 other sections, such as High Blood Pressure Control, Pregnancy and Infant Health, and Misuse of Alcohol and Drugs. There are about 29 objectives related to nutrition.

Data needs are acknowledged in the publication. Note from page 3:

> "The most salient common feature across the 15 areas is the need for better data both to profile current status and to track progress towards the established objectives. Statistical analyses derived from reliable data, continuously reported and coded according to universally accepted definitions and conventions are essential for establishing the true nature of the problems preventive measures should address... The paucity of data is particularly handicapping for state and local organizations and agencies seeking to set and track progress toward their own local priorities and objectives for prevention."

How many of you think there is a paucity of data? How many of you have attempted to measure progress toward meeting the 1990 objectives?

A number of states have used the document to assess where they are relative to the objectives. Two I am familiar with are Vermont and Illinois. Elvira Jarka from Illinois reported at the APHA meeting that Objectives for the Nation had been extremely useful in improving the quality and content of data collected and in making nutrition more visible. For the first time in Illinois history, the Fiscal Year (FY) 1985 Human Services plan for Illinois included a separate program plan for nutrition services! I am sure similar occurences have happened in other states. This is indeed where we want to go.

If each one of you would attempt to measure progress toward the objectives, or if through the Association we could jointly agree how the Objectives should be modified, we could make a quantum leap forward in our knowledge of public health nutrition.

Time To Be Counted

It is my observation that nutrition exists in a wrinkle in time. On the one hand, this appears to be a golden era. Everyone is interested in nutrition. Public awareness of the importance of nutrition has exploded in the past decade.

Ironically, however, we live in what Patrick Moynihan recently labeled as an "inhospitable era." Resources for public programs are seriously constrained. This is an era of quantification. If nutrition wants a piece of the dwindling gold, it must be visible, countable, and effective.

People speak of nutrition as a priority, but it often disappears in the final analysis. Why? Look for nutritionists in a listing of a state's manpower. They frequently are missing. Therefore, when planners or policy-makers add up the health professionals in the state to produce their analyses, nutritionists will not be counted, and they will be missing in all subsequent discussions.

Look in state health plans. Nutrition is frequently not there. Look in state health interview surveys. At least in some instances self-reported consumption of sodium and fat may be included. Look in more recent health promotion plans. Nutrition, although of major interest to the public, too frequently is missing.

What about costs for nutrition services? Not all nutrition units or services have separate budgets. It is difficult to add up all the pieces and obtain a total cost for nutrition services.

And what about effectiveness? Look for outcome data in some of our nutrition programs, such as WIC. The data may be in medical records, but they aren't counted and summarized. We know very little in our reported systems about the total nutrition assessments provided or the outcomes of these assessments. An obvious urgent task for nutritionists is to make nutrition quantifiable and visible.

Existing Data Systems

There are existing data systems to help in this task. You will hear more tomorrow about out national surveys such as the Health and Nutrition Examination Survey (HANES) and the National Food Consumption Survey (NFCS). The vital statistics system uses birth and death statistics to provide such useful indicators as infant, prenatal, and neonatal mortality rates; rate of low birth weight infants; and rates from the leading causes of death. How many of you routinely work with

your state vital statistics staffs? They can be excellent resources.

Census data provide demographic data, such as race, sex, and age categories, useful for stratifying health status or outcomes data. Hospital discharge analyses may be useful. For example, the staff of the Rhode Island Department of Health considered using primary and secondary diagnoses of malnutrition as one indicator of hunger when questions of the prevalence of hunger began to surface. State health planning agencies or other agencies frequently have their own surveys. They may be periodic such as Rhode Island's Health Interview Survey or a special survey to answer a specific question, such as the Massachusetts Nutrition Survey.

All of you are familiar with the Center for Disease Control's (CDC) surveillance systems which will be discussed in more detail. These systems provide continuous monitoring of selected indicators for subsets of children, pregnant women and adults.

How many of you are now familiar with the Association of State and Territorial Health Officials (ASTHO) data collection system? Since 1970, ASTHO has operated a uniform data collection system to maintain a national and consistent data base on the services and expenditures of the 57 state and territorial health agencies. In 1982, the maternal and child health and crippled children's forms were revised to capture information on block grant funds and indicators to help measure progress toward achieving the 1990 objectives. The Data Committee of this Association participated in that forms revision.

In the data collection cycle which ended in December 1983, it became apparent that some Nutrition Directors never saw the survey forms; data were supplied by people who may not have had all the requisite information; and some of the data requested were not available. For example, under health assessments for infants, 14 states reported the number of infants who received nutritional assessments; 7 states knew the numbers with reported problems; 7 reported referrals to WIC; and none knew the numbers receiving treatment. Apparently our systems were not capturing the data needed to answer these questions. If the data are in the medical records, but not aggregated to provide an overview or monitoring system, then the data are of no use in reporting the outcomes of nutrition services. An opportunity has been created for nutrition input to a major data system which defines and measures health services. If the forms are not filled in, we lose an important vehicle for making sure nutrition services are counted. <u>You</u> can make a difference in this system.

How many of you have attempted to do a nutritional needs assessment for your states? Then you know that you end up with bits and pieces of data from the systems just outlined. It's like trying to make a quilt without any pattern. The data represent different time frames, different population samples, maybe even different definitions of risk factors such as anemia. How do you make sense of it all? <u>Objectives for the Nation</u> provides an organizing rubric by defining specific objectives and baseline figures. For example, the objective

for reducing the prevalence of significant overweight for adult men is to move from 14% to 10%. This kind of information helps to focus our efforts better and begins to reveal the inevitable gaps in the data.

Our survey shows that most state health departments capture data on preschool children and women of childbearing age. Fewer collect data on school-age children and still fewer on the elderly or men of all ages. For each health indicator, more states collect data than aggregate and use it. For example, 100 percent of the states collect hematocrit data, but only 80 percent aggregate it. Fifteen percent of the states know something about the nutrition knowledge of consumers, but some of our objectives such as this one, have no baseline data. In addition, we lack common definitions. For example, states vary widely in the cut-off values used to define iron deficiency anemia.

Where We Need to Go -- Together

We need to do what we are doing today: organize around the collection and use of data. We need to put our heads together, develop common definitions, determine what it is we need to know and how we will use the information. The 1990 Objectives have served to alert us to our data needs. It is now up to Nutrition Directors to make the quality and expert utilization of data one of their priorities. You are each in leadership positions in your respective state or local agencies. Do not hesitate to forge some consistency of data collection and use within your own boundaries. Develop agreements across the states on common definitions or minimum data sets. We must do this to make sure we are counted in this era of quantification.

We could all use more training in data analysis, statistics, and epidemiology and should plan to get more as part of our continuing education. We could all be more sophisticated in our understanding and use of data. But, the best way to learn is by doing. You each have a whole state or local area as your laboratory. Roll up your sleeves and you will begin to demystify the process for yourself.

Overcome the Barriers

Nutritionists come from a diversity of backgrounds and all of us occasionally find ourselves in situations which bring us face to face with gaps in our own knowledge. Although data analysis can sometimes be intimidating, all that is really required is a logical mind and the assertiveness to ask questions and get answers you understand.

Be creative with the resources surrounding you. Employ tutors or work with people whose business is data analysis. For example, work jointly with fellow staff members in vital statistics or health planning or purchase help from a university or consulting firm.

Clearly Define Data Needs

Be ecologically sound about data collection and use. Precisely what questions do you wish to answer? What is the minimum amount of data needed to answer the questions? Has someone else already collected the information? If so, try to make their data fit your needs. Don't collect more information than you will use. Cull any useless data from old systems. If data items are being collected but not used, they may add to staff frustrations about spending time collecting useless information. Wherever possible, incorporate nutrition questions into an existing data system which will have longevity.

Levels of Scientific Rigor

Data collection and utilization requires scientific integrity, defined here as heeding the limitations of inferences which can be made from the data. However, there is a range of scientific rigor:

- Research
- Evaluation
- Surveys
- Surveillance
- Program monitoring/description
- Needs assessment

State agencies are most appropriately involved in the latter four or five areas. Creative use of program data, such as simple comparisons of local agencies on indices like costs per recipient, can provide a great deal of useful information. You don't have to produce research quality results, but you do have to be conscientious about the use of data.

Make the Data Useful

Frame questions carefully so that the responses meet your data needs. Provide feedback to the agencies or staff who collect the information. By making the data useful to them, you initiate a quality control process. Staff members who are interested in the outcome of the data analysis will use more care in recording the data. The effect of the feedback loop is maintenance of the data system at a high level of quality.

When undertaking any data collection, pay attention to other national, state, or local studies you may wish to compare with your results. Use common definitions of data items to allow for such comparability of results, thereby extending the utility of your study.

Packaging Data

Know your target audience and how they like to receive information. You may wish to present the data in different styles to different audiences. For example, scientific groups want detailed information. Legislators prefer a summary statement of results and implications of the data.

Know what you would like to accomplish with your data. Do you want more funds for nutrition? Do you want a different mix of services? Focus discussion of results on these desired outcomes.

If you are not heard the first time, try repackaging the data. Maybe you didn't communicate in the most effective manner for that particular audience.

Build Data Systems for Longevity

Wherever possible, incorporate nutrition data into ongoing state data systems to ensure longevity. Computerize the data. Make maintenance easy and routine. Periodically re-evaluate the utility of the nutrition component and make appropriate changes.

Acknowledge That Decisions Are Political

Don't hesitate to step into the political arena if you are properly prepared. If you have done a high quality job of data collection and a rigorous analysis, you can speak with assurance. Anticipate questions and be honest about the limitations of the data.

Don't Lose Sight of the Goal: Healthy People

Data collection should be rigorous, but don't get so involved in the process that you lose sight of the goal. The goal is healthy people, not just healthy data. More information is not always better. Clarity and thrift are better allies in data collection and use.

Recipe for Demystified Data

In summary, to demystify data for yourself, you may use the following recipe. Begin with a huge helping of scientific integrity. Throw in a pinch of practicality, several technical advisors, and the clear answers to many questions. Knead rigorously (sometimes called "massaging the data"). Form into digestible doses. Drop onto an ungreased cookie sheet and bake at moderate temperature until done. Finally, serve with panache and plenty of political savvy!

Remember our goal is healthy people. And remember: this is <u>your</u> conference. Make it work for <u>you</u>.

Judith E. Brown, PhD, MPH, RD

I would like to make four major points. They are:

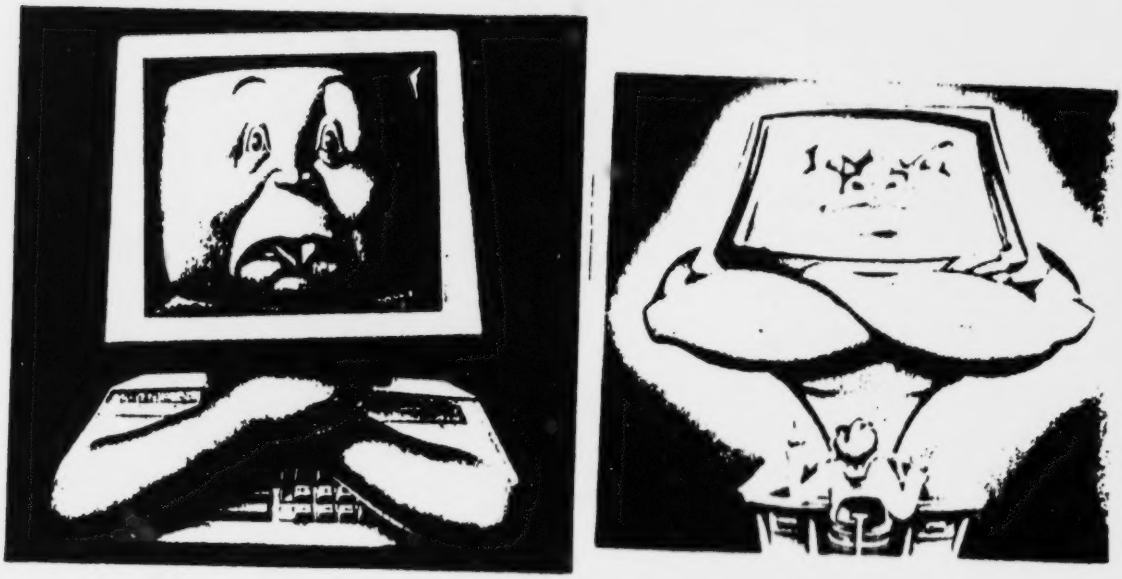
1. The critical assessment and evaluation of data.

2. The importance of using a "marketing approach" as a component of data collection planning (i.e., the results you get should be the results the recipients of the report need and want).

3. The importance of "backward planning". Decide what you want as outputs (e.g., percent of children with growth failure, improvements in hematocrit related to nutrition services), state them as study objectives, and then decide on your input (e.g., what questions will be asked or what objective data needs to be collected in order to get the desired output).

4. Keep presentation of information simple. Simple, straight forward discussion of results is tough to articulate. Excessive data will be rejected by intended audiences.

Why Fork Out Thousands Of Dollars On A Computer And Then Feed It Junk Food?



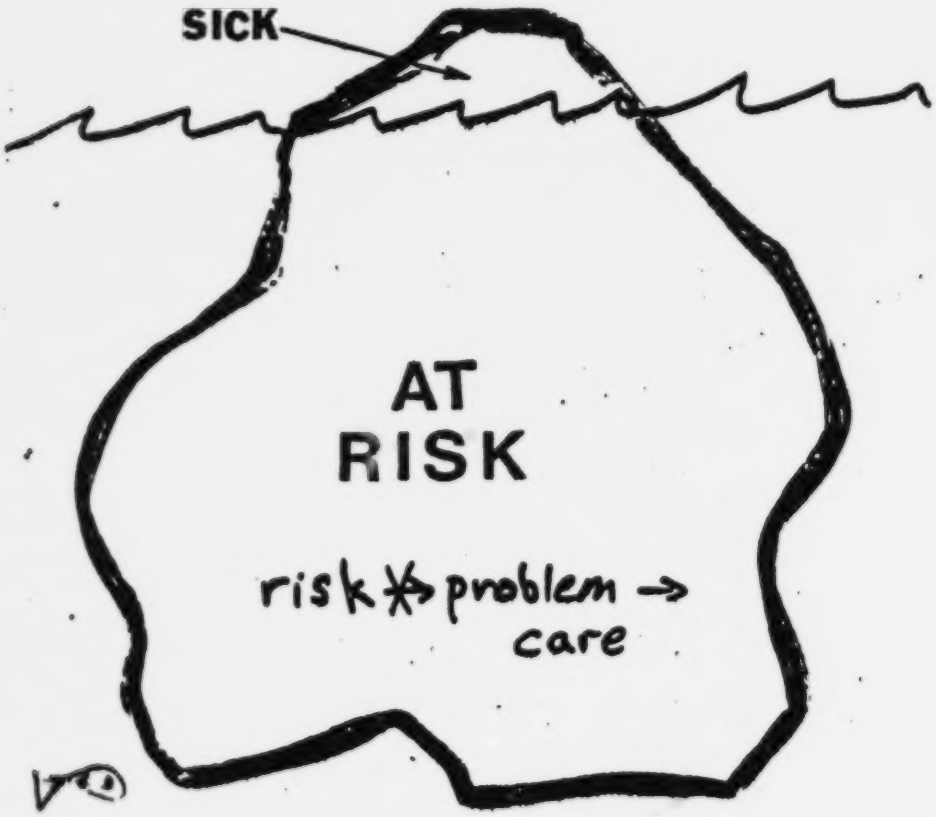
A Computer Should Be The Answer To Your Problems. Not The Cause.

These considerations, in turn, emphasize the importance of having clearly defined goals. At the most practical level, this suggests that to maximize the chances for success, it is first crucial to determine what the needs are and then to design system output to meet those specific needs. The most successful computer applications have been those which have been designed "backwards" i.e., considering output, first, and the input necessary to achieve this output, second.

Individuals involved in computer applications have tended in the past to overestimate the ease with which certain tasks may be accomplished and to underestimate the time needed. The "consumer", i.e., the non-computer oriented academician or clinician, has often been disappointed. It appears that in computer applications, in particular, Murphy's Law cannot be broken. Limited and realistic tasks should be undertaken only with adequate hardware, system software and personnel.

Some appropriate computer applications include:

- Dietary Risk Assessment
- Patient/Client Education
- Dietary Planning, Monitoring -- Normal Nutrition, Weight Loss, Special Diets
- Research, Needs Assessment
- Quality Control, Requirements -- Menu Analysis, Recipe Analysis



NUTRITION SERVICES IN STATE AND LOCAL PUBLIC HEALTH AGENCIES - 1985

PRELIMINARY REPORT OF STATE SURVEY

Mildred Kaufman, RD, MS

Expanding from primary focus on pregnant women and children and communicable disease control earlier in the century, public health program mission statements now articulate a commitment to serve people throughout their lifespan, identify chronic diseases as major public health issues and recognize responsibilities to middle and upper income as well as low income families. Increasing awareness of health promotion/disease prevention as a cost beneficial alternative to high cost crisis medical care underlines the urgency of such a mission. Research is increasingly clarifying the many contributions of appropriate nutrition and diet to successful reproduction, growth, development, wellness, and productivity of populations, suggesting expanding opportunities for public health nutritionists in state and local public health agencies.(1) Recognizing both the expanding challenges of public interest, and consumer demand for more nutrition services in a climate of agency fiscal constraint, the ASTPHND Data Committee felt that it was timely to survey nutrition services in state and local official health agencies in 1985. The survey questionnaire was designed to obtain current data on:

- agency and nutrition program organizational structures and staffing
- numbers of public health nutritionists employed in state/local official health agencies
- budgeted vs. filled, frozen and vacant positions (fulltime equivalents) and funding sources for existing positions
- minimum educational requirements established by state personnel classification systems vs. estimated percentages of incumbents with credentials recommended in Personnel in Public Health Nutrition for the 1980's(2)
- utilization of nutrition services by the various categorical programs administered by state agencies, and whether these programs users contribute to funding nutrition services
- data systems used by state categorical public health programs and whether or not nutrition data elements were included
- nutrition related data elements utilized to monitor progress toward achievement of the 1990 Health Promotion/ Disease Prevention Objectives for the Nation[3] by state/local health agencies
- agency philosophies and uses of data
- prioritization of continuing education areas by state/territorial nutrition directors

The questionnaire designed to collect such a variety and depth of information was obviously complex and time consuming to complete. To

gain the needed census, program inventory, and status of data use over the U.S., 100% response by state/territorial nutrition directors was sought. Recognizing that 100% response to data questionnaires is rare, this response rate to this questionnaire was impressive and a tribute to those who completed it.

This is a brief and preliminary overview of the analysis of survey results. Data as appropriate are tabulated by state, DHHS regions, and U.S. totals. Detailed tables are provided to conference participants to review for possible corrections as well as for use in making state and regional comparisons. These tables are not to be used for publication in their present form. The ASTPHND Data Committee is developing policies and procedures for those desiring to obtain and use the edited survey data for publication. (Since tables were preliminary and extensive they are not included in these proceedings.)

In administration of the survey some problems with the instructions as well as the questionnaire became apparent. These may account for some discrepancies in summarizing the data. Because of differences both in programs and perceptions of the public health nutritionists responding, tabulation may have resulted in some misinterpretation. Summaries always lose some of the individualization of subleties in responses, and possibly cause some distortions.

Even cursory observation confirms the diversity and variety of public health agencies, their organizational structures, staffing and delivery of nutrition services. At this time 65% of the states have a freestanding department of health or health and environment while 35% of state public health agency functions are administered by human service agencies.

Organizational placement of nutrition services according to the classification in Personnel in Public Health Nutrition for the 1980's(2) are:

- 43% of the states have nutrition program units headed by a director/administrator
- 24% of the states employ nutrition consultants in specialized categorical program units with no officially designated coordinator
- 19% of the states utilize a matrix organization with a chief/lead public health nutrition coordinator/consultant with the other nutrition consultants assigned to categorical program units
- 15% of the states utilize other organizational structures for nutrition services

Getting an accurate census of public health nutritionists in the U.S. has always be confounded by two issues regarding whom to count. One relates to employment by official vs. quasi official vs. contract agencies. The second relates to defining positions by educational qualifications vs. job function. For the purposes of this survey, the count was limited to numbers of established full-time equivalent positions in state and local official health agencies. The definition

of the Public Health Nutritionist in Personnel in Public Health Nutrition in the 1980's was to be used eliminating those nutrition workers whose primary function was direct nutrition care.(2) It is recognized that this count eliminates nutritionists who are providing public health services but are employed by contract WIC programs, voluntary health and home health agencies, freestanding community and migrant health centers, ambulatory out-patient clinics or Indian tribes. With this in mind this census provides an estimate of numbers of public health nutritionists. In summary the census identified 3,077 (FTE) budgeted public health nutritionist positions in official state/local health agencies. Since 2,023 of these positions are funded by WIC, without WIC funding there would appear to be only 1,054 public health nutritionist positions, nationwide. Of these, as of the dates surveys were completed between December 1984 and March 1985, 2,779 positions were filled, 35 frozen, and 182 positions were vacant.

The heaviest concentration of positions both budgeted and filled appeared to be in the eight southeastern states (DHHS Region IV) where 946 or 31% of the total budgeted positions occurred. This may reflect the prevalence of organized county health departments in this Region and their emphasis on delivery of services. This contrasts with the practice of contracting services to hospitals, out patient departments, human service or other community agencies common in some other parts of the country.

During the survey period (December 1984 to March 1985), a total of 182 vacant positions or 6% across the U.S. were reported. These again were reported predominantly in Region IV with 68.5 vacant FTE's. The fewest were reported in the four states of Region X with 0.5 FTE.

In addition, 104 federally employed public health nutrition personnel were reported to be serving populations within a defined state/local area. These included 94 Indian Health Service personnel and 10 National Health Service Corps assignees.

Major funding sources utilized for Public Health Nutrition positions in state and local health agencies were:

- 66% of FTE positions were funded by the Special Supplemental Food Program for Women, Infants and Children (WIC).
- 14% were funded with state/local revenue (209 state, 232 local, total 441).
- 13% were funded from the MCH Block Grant (163 state, 244.5 local, total 407.5). 1% of these were in Crippled Children's Services (18 state, 0.5 local, total 18.5).
- 2% are from the Prevention Block Grant (35 state, 17 local, total 52).
- 1% are from Home Health funds (11.4 state, 4.9 local, total 16.3).
- 4% other funds e.g. contracts with other agencies, family planning, EPSDT/medicaid (75 other state, 55 other local, total 120).

That over the country only 14% of state and local positions appeared to be general revenue funded may testify to the still limited

state and local commitment to generalized nutrition services to people of all ages and income levels. This challenges public health nutrition administrators to work toward the 1983 position statement, "It has long been recognized that nutrition services are essential to enable public health agencies to fulfill their mission."(1)

An attempt was made to test the ratio suggested in Personnel in Public Health Nutrition for the 1980's(2) of one Public Health Nutritionist per 50,000 population, both nationally and by state. This ratio is suggested for the public health Master's degree prepared nutritionist with planning, policy making, program development responsibilities. It is recognized that some of the persons classified as Public Health Nutritionists carry significant direct client care responsibilities. In this census, it cannot be assured that the persons counted clearly meet the definition nor that nutritionists in other agencies not counted may not have such functions in a particular state. However, if this ratio is to be useful to planners, a beginning attempt needs to be made to apply it. Applying this ratio to the 1985 U.S. population of 237,853,900 people suggests the need for 4,757 state and local public health nutritionists in planning, policy, managerial, community program development roles. This survey identified 3,077 nutritionists or 65% of the recommendation. Putting the number of budgeted state/local positions into a ratio of number of budgeted positions to number of recommended positions by state demonstrates a ratio of 17:0 in the Virgin Islands down to 0:07 in Massachusetts. If the appropriate definition of public health nutritionist was uniformly used variations may be accounted for by the differences in service delivery systems; and/or availability of nutrition services in related non-official agencies. Age distribution, economic, health, nutrition status of the population and expectations and values of the public and health care providers, along with population sparcity, rigorous climate or geographic barriers must also be considered in adjusting the staffing ratios.

Forty years ago, educational qualifications published for public nutritionists recommended coursework in public health including community planning, epidemiology, biostatistics and public health practice, as well as advanced nutrition and behavioral aspects of eating practices. This survey, in 1985, identified 19 or 35% of state/territorial personnel systems stipulating a Master's degree which includes coursework in the public health sciences as well as advanced nutrition as the minimum educational requirement for the Public Health Nutritionist position level. Whether or not such a degree was required only 12 or 22% of the respondents estimated that 70% or more of the Public Health Nutritionists in their state/territory possessed this educational preparation. This limited number of nutritionists having public health training underlies the need for this continuing education conference and challenges educators to offer short term continuing education in public health science and management for persons employed in state and local public health agencies. Twenty-two states or 41% require the credential of RD or RD eligibility and 39 or 72% of the states/territories estimated that 70% or more of their Public Health Nutritionists present this credential.

The increasing requirement for RD eligibility challenges educators to assure that their Master's degree graduates have the opportunity to obtain this credential if it is not required for admission to their graduate program.

The most critical issue currently confronting public health and public health nutrition administrators is funding. Accessible funding sources have undoubtedly influenced the program direction in the early years toward maternal and child health and more recently toward the Special Supplemental Food Program for Women, Infants and Children (WIC). Identification of public health agency administered programs utilizing nutrition services suggests a wide variety of interest but more limited contribution to the support of nutrition services. If "data is gold" as the final speaker will suggest, the number of these programs having a data system, hopefully automated, and integrating nutrition data must be critically studied. The questionnaire identified those state health agency administered programs which might be expected to utilize nutrition services. Of these, nine are primarily related to maternal and child health, six are usually associated with adult health, aging and chronic disease control, and three are not age group specific. Numbers of states administering these programs comparing their utilization, funding and documentation of nutrition services are shown in Table 1. Most of the programs utilizing, funding and documenting services are in the maternal and child health area.

Table 1

COMPARISONS OF STATES ADMINISTERING PROGRAMS/SERVICES WITH THEIR UTILIZATION/FUNDING/DOCUMENTATION OF NUTRITION SERVICES IN THESE PROGRAMS

	Administer Service	Utilize Nutrition Service	Fund Service	Integrate Nutrition Data
	N	N	N	N
WIC	54	54	51	43
Maternal/Child Health				
Maternal Health	53	49	42	24
Child Health (well)	45	42	19	18
Family Planning	50	42	10	11
Crippled Children/ Dev. Disabilities	42	36	22	7
Perinatal Care	39	33	13	11
Genetics	40	22	6	3
School Health	24	22	2	4
Dental Health	47	30	1	1
EPSDT	31	24	5	12
Adult Health				
Health Promotion/ Risk Reduction	47	41	14	12
Hypertension	44	40	13	11
Chronic Disease	38	30	7	8
Diabetes	33	30	13	8
Adult Health	29	27	8	6
Heart Disease	22	17	5	4
Health Facilities (Licensure/Certif.)	45	39	28	11
Home Health	33	22	5	5
Migrant Health	20	18	10	4

A major focus of this conference is the state utilization of available data to monitor progress toward achievement of the nutrition related 1990 Health Promotion/Disease Prevention Objectives for the Nation as delineated by the Department of Health and Human Services.(3) To be useful, the state health agency must routinely collect data, and also aggregate the data for program monitoring. Table 2 lists nutrition related data elements on selected population groups being used to monitor progress toward achievement of the 1990 objectives. This table shows the number and percentage of states that collect and aggregate data for the several risk indicators.

The primary nutrition related health conditions being monitored using current data systems are anemia, child growth and pregnancy outcome. All states report collecting data on hematocrits and child height for age. Over 90% of states report collecting child growth data (weight for age, height for age, weight for height), and pregnancy outcome data (low birth weight, infant mortality, perinatal mortality, and mother aged 17 years and less). Collection of data on indicators for adult chronic diseases was much more limited.

The major target populations for data collection include: infants, preschool children and women of child bearing age with some data collected on school age children and adolescents. Except for some data on hypertension, few states collect data on men, post menapausal women or older adults.

A final component of the survey asked state nutrition directors to rank topical areas of interest for their own continuing education. These topics had been generated at a February 1984 conference on training public health nutrition personnel.(4) The priority of ranking was as follows:

1. Administration/management with emphasis on new approaches to financing nutrition services.
2. Cost benefit/cost effectiveness analysis.
3. Planning and policy development and data systems.
4. Epidemiological skills development.
5. Innovative approaches to nutrition education (e.g., mass media, new information technologies).
6. Home health care administration.
7. Cultural/ethnic food habits.
8. Clinical care issues.

Table 2

USE OF NUTRITION RELATED DATA ELEMENTS ON SELECTED POPULATION GROUPS TO MONITOR PROGRESS TOWARD ACHIEVEMENT OF PROMOTING HEALTH/PREVENTING DISEASE OBJECTIVES FOR THE NATION

Indicator	Measure	States			
		Collect	Aggregate	Collect	Aggregate
		N	N	%	%
Anemia (Fe Deficiency)	Hematocrit	54	43	100	80
	Hemoglobin	34	25	63	46
	FEP	12	7	22	13
Breastfeeding	Hospital Discharge	20	14	37	26
	3 Months	12	9	22	17
	6 Months	15	9	28	17
Child Growth Abnormalities	Weight/Age	52	33	96	61
	Height/Age	54	34	100	63
	Weight/Height	51	33	94	61
	Other	4	2	7	4
Pregnancy Outcomes	LBW Less than 2500 grams	53	43	98	80
	Infant Mortality	51	40	94	74
	Perinatal Mortality	48	38	89	70
	Mother; 17 years or under	51	40	94	74
Dental Health	DMF (decayed/missing/ filled)	19	14	35	26
Obesity Adult	120% ideal BW or over	23	13	47	24
	Weight/Height	17	10	31	19
Heart Disease	Serum Cholesterol	5	4	9	7
Hypertension	Prevalence	29	22	54	41
	BP Values	30	19	56	35
Diabetes	Prevalence	16	11	30	20
	Blood Glucose Values	11	7	20	13
	Keto Acidosis	6	4	11	7
	Other	8	5	15	9

Table 2 -- Continued

Cirrhosis	Alcohol Consumption	11	8	20	15
Health Care Providers Include Nutrition Education/ Diet Counseling	Individuals	26	20	48	37
	Encounters	27	20	50	37
Nutrition Knowledge of Consumers	Able to Identify Dietary Factors Related to Heart Disease, Hypertension, Dental Caries, Cancer	8	9	15	17
	Able to Identify Foods Low in Na, High in Calories, Good Sources of Fiber	8	9	15	17
Economic Indicators of Malnutrition/ Hunger	Unemployment Rates	23	16	43	30
	Individual Families Living Below Poverty Index Incomes	30	20	56	37
	Participants in Emergency Feeding Programs	10	8	19	15

This is a brief overview of a very comprehensive state survey. After studying and analyzing the various aspects of data collected in much more depth, it is anticipated that a number of reports will be prepared for publication. Comments and suggestions regarding the areas of interest for more in depth analysis would be welcomed.

Definitions for the Purpose of this Survey

DIRECT NUTRITION CARE PROVIDER - Nutrition professional or paraprofessional who provides nutrition care, counseling, and nutrition education to clients and the public.

DIRECT SERVICE - Nutrition services rendered to clients or the public in face-to-face contact. (e.g., individual or group counseling, or nutrition education, nutrition assessment, etc.)

FTE - Full time equivalent.

INDIRECT SERVICE - Nutrition services provided to clients or the public through one or more intermediaries as through other health care providers, educators or the mass media. Includes planning,

advocacy, consultation, technical assistance and in-service education.

MATRIX ORGANIZATION - Administrative structure in which the state health official or his deputy designates a chief or lead nutrition director, consultant or coordinator to provide technical guidance to other nutrition consultants in the agency who are responsible to a categorical program director.

NUTRITION PROGRAM UNIT - Administrative structure where a visible nutrition program unit is headed by a director/administrator of public health nutrition services who reports to a health official responsible for generalized public health services and who directs nutrition services to address the assessed community needs and assigns nutrition personnel to work with the multiplicity of public health programs and services where nutrition should be a component.

PUBLIC HEALTH NUTRITIONIST - Member of the public health agency staff with designated responsibilities for assessing community nutrition needs and planning, organizing, managing, coordinating, and evaluating the nutrition component of the health agency's services.

SPECIALIZED CATEGORICAL PROGRAM UNITS EMPLOYING NUTRITION CONSULTANTS - Administrative structure in which nutrition consultants are employed and serve as full or part-time members of specialized program consultant teams (e.g. MCH, WIC, adult health, health promotion). No formal channels are established for coordination of specialized nutrition consultants, and no lead or nutrition director is officially designated.

STATE HEALTH AGENCY - Organized unit of state government with designated responsibilities for administering public health programs and services. May be a free standing health department or a unit within a human service agency.

STATE HEALTH DEPARTMENT (free standing) - Independent agency with designated administrative responsibilities that include only public health (and environment) and whose chief administrator is directly responsible to the state's governor or other high-level official.

"UMBRELLA" HUMAN SERVICE AGENCY - State agency with administrative responsibilities for an array of people services including social and rehabilitative programs and services along with public health. In this type of agency the state health official is administratively responsible to a departmental secretary who, in turn, is responsible to the state's governor.

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OBJECTIVES FOR THE NATION: WHERE ARE WE IN 1985?

J. Michael McGinnis, MD

Perhaps nothing can be more important for those of us in public health than knowing where in the life cycle we are investing our resources and where we need to make the investments. As the Director of the Office of Disease Prevention and Health Promotion at the Federal level, I administer a variety of activities that comprise my federal perspective, and I actually see a constellation of national, state, and community contributions. I will discuss the process, and the progress to some extent, that has been undertaken toward reaching the national 1990 objectives. I will describe the federal role as well as the role of state agencies in contributing to attainment of the objectives. I plan to describe how data are being gathered to measure the progress of reaching the objectives generally, and I will touch with some specificity on the nutrition objectives. I will then suggest how state health agencies and public health nutritionists can promote and implement these objectives on the state level. That these objectives are national and not federal is key. Activities at the state and community level fuel the national momentum, and nothing short of a collective commitment -- one that draws widely from our nation's resources through a qualitative effort will make the 1990 objectives viable. That the objectives have become national guideposts for federal and non-federal prevention efforts is testament to their durability and usefulness.

Given that the objectives involve nearly all Public Health Service agencies as well as other federal departments and agencies and that they are increasingly a reference point for planning and budgeting in the Public Health Service, it is useful to begin by reviewing the origins of the objectives. At the core of the federal health promotion and disease prevention initiatives are two policy-related documents -- Healthy People: The Surgeon General's Report on Health Promotion and Disease Prevention (published in 1979) and Promoting Health/Preventing Disease: Objectives for the Nation (published in 1980). The Surgeon General's report reviewed the general health improvements for Americans over this century and identified those major health problems -- in many cases, preventable problems -- currently facing Americans. In addition, the report set out five broad life-stage-oriented goals to be achieved by 1990, goals that set the stage for the subsequent development of measurable objectives. Those five goals were: reducing infant mortality by 35% by 1990, reducing child mortality by 20% by 1990, reducing adolescent and young adult mortality by 20% by 1990, reducing adult mortality by 25% by 1990, and the fifth goal concerns older adults but is not a mortality-based goal -- namely, reducing the average annual days in confinement -- bed days for the older population by 1990.

The second document, Objectives for the Nation, was issued a year after the Surgeon General's report, and it specified 227 measurable prevention objectives organized around 15 priority health areas. All of the substantive areas -- one of which is nutrition -- provide a framework for the objectives and feature issues in health promotion, health protection, and preventive services. Of the 227 objectives, 17 include nutrition specifically, and a variety of other categories relate to nutrition. The objectives were designed to facilitate progress toward the goals for the five broad life stages.

Perhaps as important as the specification of the objectives was the process by which they were formulated. Several hundred professionals, representing a variety of disciplines, met in Atlanta and, working in small groups, arrived at consensus on the objectives. The key here is the involvement and collaboration by professionals across disciplines for the acheivement of common goals.

There are several objective classes used in approaching a management project. They include outcome objectives, strategy objectives, productivity objectives, marketing objectives, and innovation objectives. The classic application of these classes of objectives is to business. The outcome objectives in business focus on profits; the strategy objectives include product type. Productivity objectives relate to labor and capital gains. Marketing objectives relate client attitude and awareness. Innovation objectives relate to product improvement.

For health programs, the outcome objectives focus on mortality and morbidity reduction. The strategy objectives relate to the risk factors (e.g., nutritional habits). Productivity objectives are the range of services that are provided for the entire population. The marketing objectives relate to professional and public awareness of the issues. Innovation objectives relate to surveillance, evaluation, and research activities. These, then, basically provide a conceptual framework for the process by which the 1990 objectives were formulated.

The 15 priority areas by which the objectives are arranged (see Figure 1) represent three general categories: health promotion, in which nutrition is a focus; health protection, where the five areas relate to environmental health measures; and preventive health services, the area traditionally thought of as preventive medicine. The number of objectives in each area range from 9 in high blood pressure control to 20 each in the areas of toxic agent control and occupational safety and health. Seventeen objectives are stated for the nutrition area.

Figure 1

NUMBER OF OBJECTIVES BY AREA

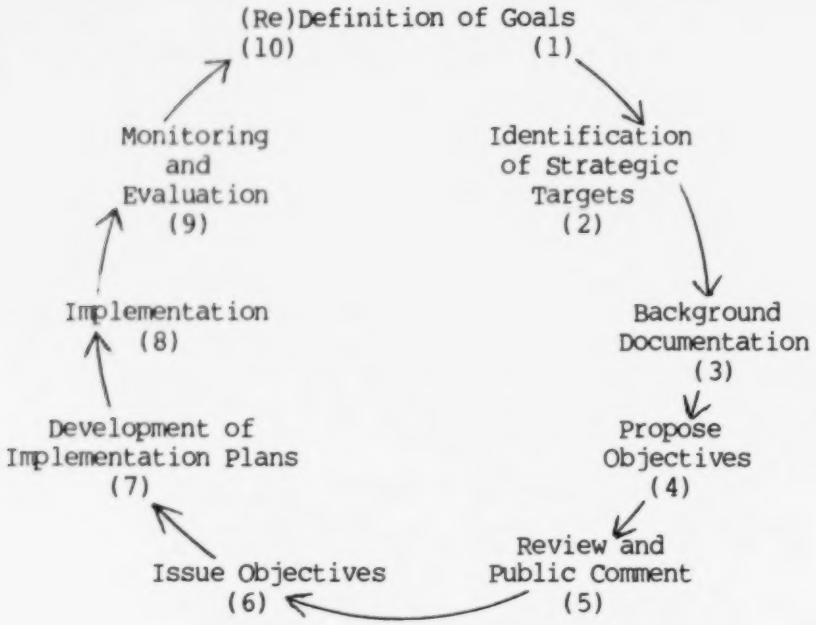
Preventive Services	
- High Blood Pressure Control	9**
- Family Planning	10
- Pregnancy and Infant Health	19*
- Immunization	18*
- Sexually Transmitted Diseases	11
Health Protection	
- Toxic Agent Control	20
- Occupational Safety and Health	20
- Accident Prevention and Injury Control	17
- Fluoridation and Dental Health	12
- Surveillance & Control of Infectuous Diseases	13*
Health Promotion	
- Smoking and Health	17
- Misuse of Alcohol and Drugs	19*
- Nutrition	17**
- Physical Fitness and Exercise	11
- Control of Stress and Violent Behavior	14
	227***

* 1 duplicate
** 2 duplicates
*** Accounting for duplicates, discrete objectives total 222

Figure 2 is a schematic representing the processes that have generally been followed in the objectives-setting exercise, beginning with the definition of goals in the Surgeon General's report, moving down to identification of strategic targets (i.e., the 15 areas just identified), then looking to the development of background documentation, to the proposing of specific objectives, to seeking and reviewing public comment from about 2,000 groups and individuals from around the country, to issuing the objectives and developing the implementation plan. This schematic shows implementation as well as monitoring and evaluation; and the final process, redefining the goals, is also the first process to begin the system again.

Figure 2

SETTING OBJECTIVES -- A PROCESS SCHEMATIC



Subsequent to publication of the objectives, the Department of Health and Human Services assigned a lead agency to develop, in conjunction with other agencies, implementation plans for each of the 15 priority areas around which the objectives are organized. These federal implementation plans do not include, although they make reference to, what can be done toward attaining the objectives on the state and local levels and by private voluntary organizations, professional groups, businesses, and the like.

In Fall of 1983 the Public Health Service published Implementation Plans for Attaining the Objectives for the Nation. This particular document which outlines the steps the Federal Government plans to take in order to achieve the five major health goals identified in Healthy People. Figure 3 shows which HHS agencies have been assigned to each of the 15 areas; for instance, the National Institutes of Health has been assigned primary responsibility for orchestrating Public Health Service activities in high blood pressure control, and the Health Resources and Services Administration is the main agency for maternal and infant care.

Figure 3

LEAD HHS AGENCIES FOR OBJECTIVES

Category	HHS Agency/Office
Preventive Services:	
High Blood Pressure Control	National Institutes of Health
Family Planning	Office of Population Affairs
Pregnancy and Infant Health	Health Resources and Services Administration
Immunizations	Centers for Disease Control
Sexually Transmitted Diseases	Centers for Disease Control
Health Protection:	
Toxic Agent Control	Senior Advisor for Environmental Health
Occupational Safety and Health	Centers for Disease Control
Accident Prevention and Injury Control	Centers for Disease Control
Fluoridation and Dental Health	Centers for Disease Control
Surveillance and Control of Infectious Diseases	Centers for Disease Control
Health Promotion:	
Smoking and Health	Office of Smoking and Health
Misuse of Alcohol and Drugs	Alcohol, Drug Abuse, and Mental Health Administration
Nutrition	Food and Drug Administration
Physical Fitness and Exercise	President's Council on Physical Fitness and Sports
Control of Stress and Violent Behavior	Alcohol, Drug Abuse, and Mental Health Administration

The nutrition objectives have been assigned to the Food and Drug Administration, although, of all the areas, nutrition is probably the area most evenly divided among agencies in terms of responsibility and activity. This shared responsibility reflects the fact that each of the agencies has a very deep interest in nutrition.

The lead agencies have taken reponsibility to work with each other in the development of implementation plans. The Information Tracking System, which is managed out of the Office of Disease Prevention and Health Promotion, maintains current data on each objective for which data are available, and monthly progress review sessions serve as a means of briefing the Assistant Secretary for Health and other policy officials on the federal contribution to achieving the objectives.

One way in which progress in reaching the objectives is being measured is by including the overall trends in causes of death and death rates. In 1982, the overall age-adjusted death rate reached an all time low of about 554 per 100,000 population, which is a 69 to 70 percent decrease from the 1900 death rate. Death rates for every age group declined between 1981 and 1982, particularly from a recent reduction in cardiovascular disease and reduced infant mortality. Life expectancy has continued its upward trend, reaching new highs from 1975 to 1983.

The improvements in the health of Americans can also be assessed by singling out specific objectives. For instance the areas for high blood pressure control, family planning, immunization, and flouridation and dental health, some of the targets for 1990 have already been achieved based on 1983 data.

In other areas, such as nutrition, significant progress in reaching the objectives is being made. This progress can be measured because in these instances baseline data were available at the time the objectives were formulated and follow-up measures have also become available.

Figure 4 shows that baseline and follow-up data are not always available. Figure 4 indicates for how many objectives we have data. Of all the objectives, data are available for about two-thirds, but for fully one-third of those objectives, baseline data are not available. While the absence of baseline data is on the one hand a shortcoming, on the other hand, this incompleteness represents in some ways the strength of the objective-setting process. One of the major purposes of this process is to identify the principal needs for data collection--to identify the areas where data collection efforts need to be strengthened.

Figure 4

CURRENT MEASURABILITY OF PREVENTION OBJECTIVES*

Objective Category	Measurable	Not Measurable
Improved health status	55	3
Reduced risk factors	36	11
Increased public/professional awareness	8	30
Improved services/protection	27	24
Total	126	68

* Excluding surveillance/evaluation objectives; "measurable" includes figures estimated from intermittent surveys
Promoting Health/Preventing Disease, 1980

The Public Health Service itself conducts and has access to a number of data collection activities. The Vital Statistics Program of the National Center for Health Statistics is an important source of data. On the nutrition front, ongoing health surveys include the National Health and Nutrition Examination survey, a key survey which I will discuss shortly. The Public Health Service also generates data from occassional supplements to ongoing surveys, for example, NCHS's Health Interview Survey, which in 1985 includes a health promotion/disease prevention supplement that will gather information on 30 objectives. In addition, one-time surveys, like a recently conducted telephone survey about stress, can offer data relevant to assessment of a specific health concern addressed by the objectives.

Figure 5 shows data availability for priority behavioral objectives in health promotion, including nutrition. The nutrition area has 15 priority objectives. Data were available on seven of those objectives. As a result of the Health Interview Survey Supplement, additional data are being gathered, so that after completion of the HIS survey in the coming year, data will be lacking for only two of the objectives. Still, the sources for tracking information are often limited, costly, and inefficient -- that is, cumbersome to administer and, to a degree, untimely. Without question, we need additional data for tracking our progress generally.

Figure 5

CURRENT STATUS OF DATA AVAILABILITY FOR PRIORITY OBJECTIVES BY PRIORITY AREA

Priority Area	No.of Objectives	Data Available: Baseline	Data Available: Follow up	Not applicable*	Unavailable#
Smoking control	10	4	1	3	3
Alcohol & Drug Misuse Prevention	14	12	9	1	1
Improved Nutrition	15	7	1	1	7
Physical Fitness & Exercise	11	4	0	4	3
Control of Stress and Violent Behavior	10	3	2	3	4
Total	60	30	13	12	18

* Systematic type of objectives for which measurement data are not likely to be available in a form comparable to the objectives in other categories.

\# Objectives for which we currently have neither baseline nor follow-up data.

For its part, the Public Health Service operates a number of mechanisms to assess what data are available, or by virtue of the absence of data, to assess what adjustments might be made to enhance the likelihood of meeting the objectives. The monthly progress review sessions mentioned earlier provide some of this information. They serve as a briefing for the Assistant Secretary for Health by focusing on the federal contribution to the objectives, featuring each of the 15 priority areas in turn.

Another mechanism that is in place is an Information Tracking System designed to maintain in a central location current data from all sources -- not just federal sources, but all national sources -- on the progress of the objectives. Compiling and keeping the national data centrally creates a convenient mechanism for measuring progress or lack of progress in attaining the objectives. In the not too distant future, efforts will be initiated to develop access to these data for people outside the Public Health Service.

We are presently conducting a mid-course review of the objectives. This review is not for the purpose of changing objectives, since it would not be appropriate to change the targets only on the basis of a projected shortfall, but rather for the purposes of developing an analytic critique of where we are, related to the objectives, where objectives might have been misstated six years ago, and how the objectives-setting process can be improved next time around. The mid-course review will also include preliminary formulation of objectives for the year 2000. It is the hope of the Public Health Service that the objectives for the year 2000 develop through a process that generally begins at the grassroots level and moves up through various levels of our government.

We will begin developing objectives for the year 2000 in earnest in about two years. The mid-course review process will be concluded at the end of this year, and a publication will be issued sometime early next year.

As is evident from this description of the formulation, implementation, and tracking of the objectives, each level of government is committed to reaching the 1990 objectives. At the federal level much of the commitment is related to policy development and consensus building. We focus considerable attention on the development of scientific consensus around topics of important research and public interest.

Federal programs can also mobilize efforts to improve the delivery of services that can facilitate changes conducive to improved health. For example, the Health Resources and Services Administration plays an important role in implementing the nutrition objectives through delivery of nutrition services to underserved populations.

The classic federal contribution to health promotion and disease prevention activities is the support given to the development and expansion of the research base for prevention. This is the one area where the Federal Government is clearly the dominant participant and therefore a great deal of emphasis is placed on maintaining the integrity of that research enterprise. The principal vehicle for research is work at the National Institutes for Health, but more and more the Centers for Disease Control; the Food and Drug Administration; and the Alcohol, Drug Abuse, and Mental Health Administration also play important roles.

Even in public education efforts, the Federal Government has some limited programs. One of the major efforts here is the Public Health Service's collaborative work with the USDA to develop the Dietary Guidelines for Americans. A revised version of the Guidelines will be released in the Summer of 1985. Another public education activity sponsored by the Public Health Service is the Healthy Mothers/Healthy Babies program, which is a collaborative national effort to provide information on nutrition and other topics promoting healthy behavior to pregnant women and women planning pregnancy. A Healthy Older People public education program focuses on the health promotion needs

of older people and emphasizes again the importance of nutrition to maintenance of good health in older persons.

Very clearly, when it comes to facilitating behavior change for positive health outcomes, people who are in the best position to change the milieu in which individual decisions are made are those involved at the local level. This involvement affords a special opportunity to provide information about health risks through public and private programs that are operated at state and local levels to enlist employers, schools, and health care centers in the effort to pass supportive ordinances like those related to clean indoor air or traffic safety enforcement; to involve the considerable resources of voluntary organizations in the activity; and to recruit the involvement of local media for programming relevant to health. The media has demonstrated an eagerness to use information that can be provided in an effective and interesting way across the airways, and we can do much to encourage and facilitate their involvement. A successful implementation of the substantial federal effort at the policy level really can only proceed as quickly as the local infrastructure is able to put it to practical use.

By now most states have begun to adapt the management-by-objective approach to their own efforts. Obviously, these activities haven't taken a format identical to that of the federal effort. Some have been purely statistical. Some have focused on only outcome objectives, while some have also focused on process objectives. And some have looked at how individual states stand related to management objectives and so forth. A momentum has developed in efforts in support of complementing the objectives. Near completion is a survey of all of the states to determine how extensively they are involved in replicating federal activities associated with the 1990 objectives at the state level.

Turning to the subject of data gathering for the nutrition objectives specifically, the national monitoring and measurement of progress for obtaining nutrition objectives is facilitated by a number of data gathering systems. Together with the USDA, the Department of Health and Human Services participates in the National Nutrition Monitoring System. These activities along with USDA fall into five categories: health status measurements, food consumption measurements, dietary knowledge and attitudes assessments, and research in support of nutrition monitoring. Four federal agencies are actively involved in this activity: the National Center of Health Statistics, the Food and Drug Administration, the Centers for Disease Control, and the U.S. Department of Agriculture. The activities for the five components of the National Nutrition Monitoring System are dispersed among these four major agencies.

At the heart of the National Nutrition Monitoring System is the National Health and Nutrition Examination Survey (NHANES), which is conducted by NCHS. With USDA's Nationwide Food Consumption Survey, NHANES forms the cornerstone of the federal nutrition monitoring system of the U.S. population. The surveys include health histories

and other measurements, as well as dietary interviews. Analyses of the collected data provide assessments of the health and nutritional status of the U.S. population. Two surveys (NHANES I and II) have been completed to date, and data collection for a third survey was completed last December.

Over the years, the data generated by health examination surveys have served a variety of uses. They have provided estimates of the prevalence of nutrition-related characteristics of the American population. Normative and descriptive data have been published on topics such as weight and stature. Both types of estimates permit the monitoring or measurement of changes in health and nutrition status over time through successive surveys. Budgetary constraints necessitated scheduling the next NHANES to begin in 1988 rather than in 1987. NCHS has already begun planning for the survey -- considering such elements as content, sample design, data processing, coordination with other surveys, the addition of a longitudinal component and the possibility of continuous monitoring of special groups.

The combined data from the Nationwide Household Consumption Survey and Nationwide Food Consumption Surveys provide information about the kinds and amounts of food we use. We are working to coordinate and make sure that the efforts reinforce each other in a much more substantial way.

Three efforts exemplifying improved coordination include: sponsorship of a data user's conference to involve people who use the data from these surveys in a discussion of their needs; establishment of an Advisory Committee, the Joint Nutrition Monitoring and Evaluation Committee, to look at the two primary surveys of nutritional status and preferences (with a report due in the Fall); and an interdepartmental committee, charged with coordinating the content of the national surveys and devising future surveys with compatible designs and definitions.

The final point of discussion concerns the issue of how state health agencies and public health nutrition directors can help to promote and implement the 1990 objectives pertaining to nutrition on the state level. Clearly, formulating the objectives was just the first step in the process of working on a united front to reduce or eliminate preventable causes of disease and death. Putting the objectives into action is a dynamic process that enlists individuals from a variety of professions. The intensity of involvement by which the objectives were developed needs to be replicated now at the state and community levels. Local implementation of the nutrition objectives takes place through a number of channels. The approaches can be defined by the very categories into which the 1990 objectives were crafted. That is, in addition to objectives that describe a reduction in risk factors and improved health status, other objectives aim to improve evaluation and surveillance systems by enhancing our knowledge base; to heighten the level of awareness on the part of the general public as well as on the part of the professional community; and to improve the availability of services and protection. These categories

across which the objectives are distributed suggest ways in which their implementation can be realized.

A good example of how compliance with government regulations instituted to support the 1990 objectives can be monitored and evaluated is the successful implementation of sodium labeling. On another front, nutritionists can initiate public education/information activities by providing in-service education and consultation to other members of the health care team. Public education activities are initiated and supported by the development of materials based on the national nutrition objectives. Equally important is development of education materials to alert city and county health departments and university nutrition and home economics departments about the objectives. Holding conferences on nutrition-related topics is another mechanism by which the professional community can keep apprised of the status and progress of the objectives. We have had a number of conferences in which experts provided evaluation of our progress in implementing the nutrition objectives, thereby providing impetus to and support of the health goals of the objectives.

In the area of service delivery, a nutritionist can develop standards of care that are responsive to specific objectives. For instance, routine screening and follow-up for iron deficiency anemia in pregnant women and for growth retardation of infants and children caused by inadequate diet would undoubtedly facilitate the attainment of those two objectives. Nutritionists can also work with hospitals and health centers to provide delivery through outpatient services.

Providing technical assistance for the development of worksite health promotion programs and school lunch programs is another avenue for implementing the objectives at the local level. It is especially important to see nutritionists become strong participants in the educational curriculum of every state school system.

That 40% of American children ages 10 to 14 have one or more risk factor for cardiovascular disease, including those that are nutrition related, is a disturbing reality. With the completion a few months ago of the first health-oriented nationwide survey of school children between the ages of 10 and 17, we found, unfortunately, that children in this age group are fatter than they were 20 years ago. That's not a very promising record. Even though data show improving trends in the adult population -- with cardiovascular diseases declining, serum cholesterol levels dropping, and fat consumption dropping -- children may not be making the same gains.

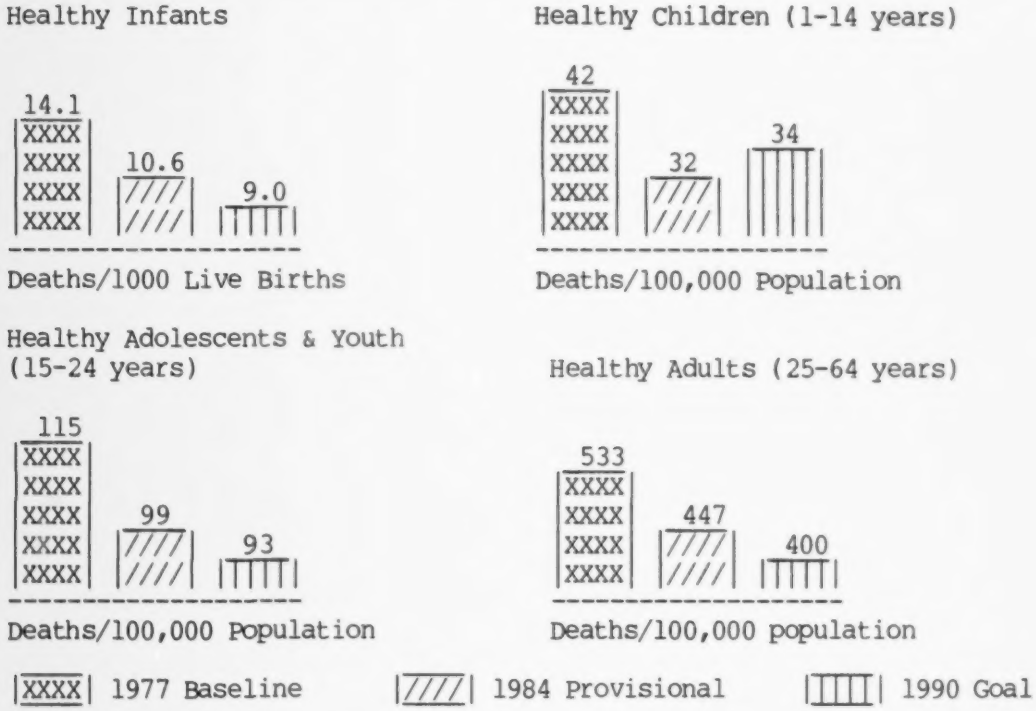
Essentially, then, the implementation of the nutrition objectives involves incorporating the objectives into state, county, and city public health nutrition initiatives and reaching the public and professionals in the community through related nutrtion education and information measures, through service delivery, and through technical and cooperative assistance. Most of all, the professional nutrition community needs to renew its commitment to a collaborative interdisciplinary enterprise. As has been stated several times already, the

objectives are national, not federal. There are limits to the reach of the Federal Government -- it cannot make the needs of every community in every state a high priority. So it is at this level that non-federal-government representatives need to endorse the objectives and work diligently for their implementation.

As depicted in Figure 6, we are making progress toward the objectives in each of the five age groups mentioned earlier. The left-hand bars note the baseline for the year in which our objective was stated, in 1977. The middle bars note where we are with 1982 provisional data, and the right-hand bars note the 1990 goal. For infants in the far upper-left corner, children in the upper-right corner, young adults in the lower-left corner, and adults in the lower-right corner, we are making substantial progress toward the 1990 goals for improved health for all of those age groups. As of 1982, with eight years still left in the decade, we're 50% or more towards obtaining those broad goals for 1990.

Figure 6

NATIONAL GOALS FOR HEALTH PROMOTION



DATA NEEDS TO MEASURE STATE AND LOCAL PROGRAM ACCOMPLISHMENTS WITHIN THE CONTEXT OF MONITORING THE OBJECTIVES FOR THE NATION

Mary D. Peoples-Sheps, RN, DrPH

Introduction

To go beyond the national-level question, "What measures should we use to monitor the Objectives for the Nation?"(1) I will address a series of questions, consistent with the national goals but more relevant to state and local program directors, such as "How can the information needed to monitor the Objectives for the Nation be useful to program managers" or, more specifically, "Which indicators are needed by which programs, on what groups, at what geographical level, and what information can they generate?"

With this focus in mind, three major topics will be discussed:

1. A framework for identifying data needs for program planning and evaluation,

2. Clues for locating appropriate data sources, and

3. The Region IV Network for Data Management and Utilization (RNDMU), an MCH Project that was developed to address data problems that impede planning and evaluation.

1990 Objectives for the Nation

Since the Objectives for the Nation(1) provide the context for this presentation, I would like to review two important aspects of the Nutrition Objectives:

1. "Measurability," and

2. Differing types of content

The "measurability" of the Objectives is important because to identify data needs, you must first identify what you want to measure and in what manner. All of the Objectives for the Nation are measurable in that they have a target date, 1990, and, where appropriate and feasible, they identify specific amounts of improvement that they are aiming for. Another aspect of "measurability" is not quite as consistent across the objectives but can be derived from them. That

is, the precise indicators that can/should be used to monitor progress are not always apparent.

For example, there are two objectives that are addressed to improved health status. The first, "By 1990, the proportion of women with iron deficiency anemia (as estimated by hemoglobin concentrations early in pregnancy) should be reduced by 3.5%, has a built-in indicator: % of women with Hgb below (cut point) during the (months) of pregnancy. It is clear that the standards for Hgb concentration and early pregnancy need to be established but, once they are, the indicator will be a good reflection of the Objective and it will be precise enough to be measured and monitored regularly.

The second Objective is addressed to growth retardation of infants and children caused by inadequate diets. It does not have a built-in measure, so one or more must be constructed if progress towards this Objective is to be monitored. It seems reasonable that, at a minimum, indicators that would include weight/height/age combinations (above or below 10th percentile) would begin to reflect the required information. To develop more precise indicators, it would be necessary to identify specific causes of growth retardation in children and to be able to link those causes to data on weight/height/age.

Using this same approach, precise indicators of each of the Objectives can be developed and, must be, to monitor progress. An important related point is that there should be agreement on the indicators that are used so that what is being measured at the national level can be compared to the indicators used at other jurisdictional levels. We will return to this point.

"Measurability" is one aspect of the Objectives. As shown in Table 1 the Objectives addressed to iron deficiency anemia and growth retardation focus on health status. Another category is addressed to nutritional risk factors and could include such indicators as:

1. % males and females at or above 120% of desired weight

2. % overweight individuals on weight loss regimens

3. % adult population with mean serum cholesterol at or below 200 mg/dl.

4. % child population with mean serum cholesterol at or below 150 mg/dl.

5. % women who breastfeed at hospital discharge.

Table 1

CONTENT OF THE NUTRITION OBJECTIVES FOR THE NATION

Improved health status

- Iron deficiency anemia in early pregnancy
- Growth retardation of infants and children

Reduced Risk Factors

- Overweight adults
- Weight loss regimens
- Serum cholesterol levels in adults and children
- Sodium ingestion of adults
- Breastfeeding

Increased Public/Professional Awareness

- Identification of dietary factors related to disease
- Identification of foods that promote health
- Understanding of principles of weight loss

Improved Services/Protection

- Labeling of packaged foods
- Sodium levels in processed food
- Promotion of dietary guidelines by employee and school cafeteria managers
- Nutrition education in schools
- Nutrition education/counseling in health care contacts

Another element in the nutrition field that the Objectives address is public and professional awareness, in terms of knowledge of dangerous dietary habits, healthy foods, and the major ingredients for weight loss.

The Objectives are obviously not expected to be achieved without appropriate, highly targeted services. Hence, there are a series of Objectives that address themselves to "Improved Services/Protection." Two of these objectives rest in the policy arena: labeling of packaged foods and sodium levels in processed foods. The three others may be addressed by some of the services that you deliver:

1. The proportion of employee and school cafeteria managers who are aware of, and actively promoting, USDA/DHHS Dietary Guidelines should be greater than 50 percent.

2. All states should include nutrition education as part of required comprehensive school health education at elementary and secondary levels.

3. Virtually all routine health contacts with health professionals should include some element of nutrition counseling.

So, there are four types of Objectives* which, conceptually, constitute a chain of events:

In practice, however, the precise events in the service Objectives do not necessarily lead to the awareness ones and reducing such risks as cholesterol levels is not likely to contribute to a reduction in, for example, child growth retardation at the health status level.

In short, the Objectives fit together in theory but not in practice. For the purpose for which they were designed, this inconsistency is irrelevant. The Objectives, and corresponding indicators, can very effectively demonstrate the nutritional health of, and services received by, American citizens. A bit more thought is required, however, to understand how the Objectives for the Nation, and more specifically how collecting data on their indicators are relevant to state and local program management.

A Framework For Considering State And Local Data Needs

When program administrators think about data, they tend to focus on the relationship between data and programmatic decisions. For those decisions five basic types of information are particularly helpful:

1. The subpopulations and geographic areas with poor rankings on indicators of health status and/or risk.

2. The interventions provided to address these health problems: what they are and how well they are delivered.

3. Whether the subpopulations at risk are receiving the interventions they require.

4. Intervening changes that are occurring in behavior, knowledge, or risk status.

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*There is a fifth type of Objective, "Improved Surveillance/Evaluation" which is integral to, but not part of, the chain of events described below.

5. Changes in the health status of the served subpopulation, the targeted subpopulation and the total population.

The five basic information requirements give rise to five types of data needs. To explore what those needs are and to demonstrate how state and local data needs (to administer programs) and national data needs (to monitor the Objectives) correspond, it is useful to employ a framework which depicts relationships among the various types of data. The framework presented is based on one developed by Edward Suchman for his 1967 book entitled Evaluative Research.(2) It hypothesizes that public health programs respond to population needs which are demonstrated by baseline data or preconditions. For example, baseline data on health status or risk status, each stratified by relevant characteristics (e.g., race, geographic area, educational level), could suggest that an intervention is needed for certain risk groups. Implementation of a program to address the baseline health problems, would then be expected to result in certain intervening events which would lead to the desired effects or change in health status. As the example in Figure 1 shows, if baseline data suggest that iron deficiency anemia in pregnancy is excessive and that the condition is not being diagnosed until late in pregnancy when correction is more difficult, an intervention consisting of a media blitz, making people aware of the problem, recruitment efforts for early registration for prenatal care,and nutrition counseling, and/or supplementation during pregnancy, might be developed. These activities should lead to greater awareness of the problem among women of childbearing age, and increases in the proportions of women who receive counseling and supplementation in early pregnancy, which, in turn, may increase the proportion with appropriate dietary patterns (reduced risk factors) and that, in turn, could lead to lower proportions of women with iron deficiency anemia in early pregnancy.

If you were to collect the data necessary to construct each of these indicators in Figure 1 and if you could stratify by relevant population characteristics, you could respond to each of the five information needs of program administrators. The obvious next question is, "where do we get the data"? Before going onto suggestions in that regard, note the similarities between the types of Objectives for the Nation and the headings in this program evaluation model. As Figure 1 shows, the words are different but the underlying concepts are the same. Note, for example, that the prevalence of iron deficiency anemia in early pregnancy is an indicator of `health status´ in the Objectives and `effects´ in the program evaluation model. In fact, the only signigicant difference between the two frameworks is the way they are filled in. That is, in the program model, the indicators follow each other in a logical progression. As noted earlier, that was not the case with the Objectives.

Figure 1

TYPES OF DATA NEEDED FOR PROGRAM EVALUATION

-----> Preconditions (Baseline Data)	-----> Program (Services/ Protection	Intervening Events (Increased Awareness)	(Reduced Risk)	-----> Effects (Improved Health Status
EXAMPLE				
Prevalence of iron deficiency anemia in early pregnancy	Media blitz → Recruitment →	Awareness → Earlier registration →	Improved dietary practices →	Decreased prevalence of iron deficiency anemia in early pregnancy
	Counseling/ supplementation →	Increased counseling/ supplementation in early pregnancy		

The point is that indicators for each of the Objectives for the Nation could "fit" into a program evaluation framework to provide relevant information for program decisions. In each case, of course, the indicator would "fit" at a different place in the model (e.g., service, awareness) and other indicators would have to be constructed to "fill out" the framework and allow for the other pieces of information required by program decisions. For example, a reduction in cholesterol levels would fall under intervening events or reduced risk factors which would have other events (services received) leading to it and effects (e.g., lower rates of heart disease) stemming from it. Thus, reduced cholesterol levels, per the specifications in the Objectives for the Nation, could be the focal point for development of appropriate services to meet that Objective locally, and for monitoring the series of events to determine whether services are effective.

It should be apparent that in the process of thinking about and generating data for program decisions, the concepts in the Objectives for the Nation can be very useful. The importance of addressing the Objectives has been well documented and, if your services are in the same area as a given objective, it stands to reason that you would want your work to correspond with the national goals. Moreover, if some of the data you need, or have decided to collect, corresponds with data collected at the national level for the Objectives, you can use them for comparison with your program accomplishments. Similarly, those who are monitoring the National Objectives would, undoubtedly, be interested in your data for identifying state/region- specific progress and, possibly, for pooling to generate national estimates.

Drawing on a Variety of Data Sources

The data required to construct the indicators that correspond to the Objectives for the Nation and the other indicators that are necessary to provide adequate information for state and local program decision-making must be selected from a number of sources. This is partly because 1) the activities and goals of different nutrition programs vary, 2) there is, as yet, no routine national nutrition surveillance program (although a Bill to establish one has been introduced in the House of Representatives) and 3) some of the information, like details about service delivery, would not be amenable to a national surveillance system anyway. Nevertheless, experience with MCH data systems suggests that, while available data may not be ideal, there are, in general more useful data items collected than are ever put to use. So it becomes incumbent on you to find out what is available and to "piece together" what you need to manage your programs.

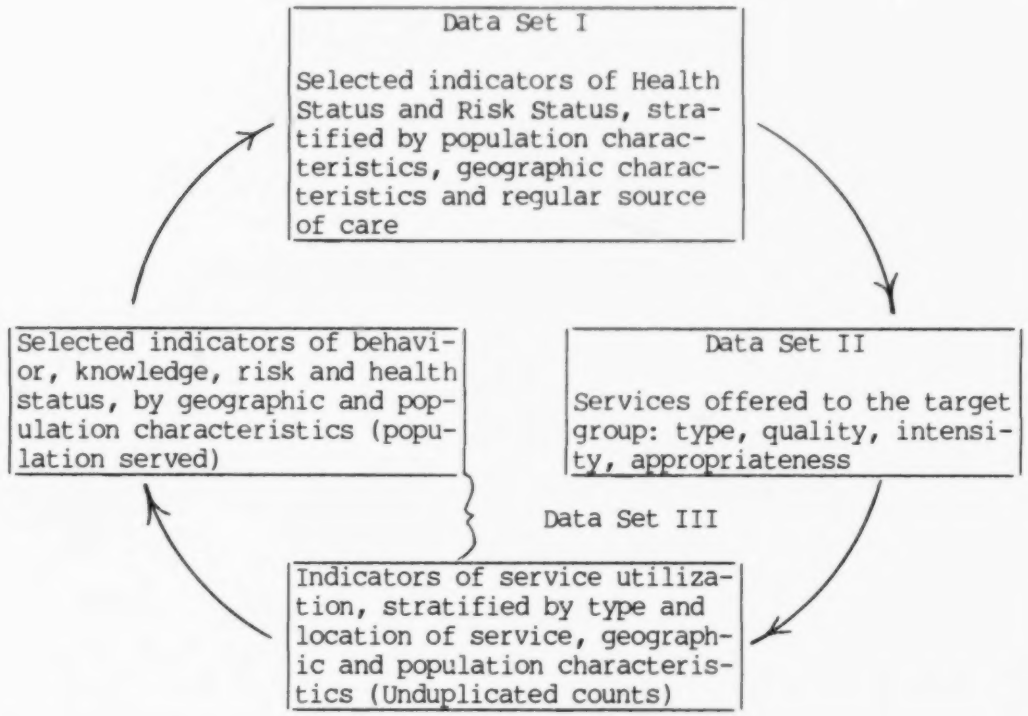
To generate the five types of management information mentioned earlier, three types of data bases, shown in Figure 2, are necessary. The first would include carefully selected health status and risk indicators. Ideally, the data base would cover a representative sample of the total population of a jurisdiction (e.g., state, region) and would include selected population characteristics (e.g. income, education), geographic characteristics (i.e., locality within the jurisdiction), and regular source of health care. Sources of data for this set would depend upon the health status indicators and characteristics required. Thus, development of the data base may be limited to accumulation and organization of data routinely collected by another agency, or it may involve the collection and organization of primary data, or some combination of the two.

To respond to the second information need, a small descriptive data base is required. This would include information regarding the services and staff effort offered to the target population in order to alleviate the health problems documented in the first data set.

The third data base would include the data needed to respond to the third, fourth and fifth types of information for program decisions. It would include utilization data capable of documenting whether the target population received appropriate services, what changes occurred in their behavior, knowledge or risk status, and what health outcomes resulted. Unduplicated counts are essential for determining levels of penetration of services into the target population. For the same reason, demographic and geographic characteristics of users must be ascertained and they must be the same characteristics used to discriminate the target population from the population at large. These criteria can be met if data are collected on encounter forms at each visit.

Figure 2

RELATIONSHIPS AMONG THE THREE DATA SETS REQUIRED
TO GENERATE BASIC INFORMATION FOR
MANAGEMENT DECISIONS


Data Set I
Selected indicators of Health Status and Risk Status, stratified by population characteristics, geographic characteristics and regular source of care
Data Set II
Services offered to the target group: type, quality, intensity, appropriateness
Selected indicators of behavior, knowledge, risk and health status, by geographic and population characteristics (population served)
Data Set III
Indicators of service utilization, stratified by type and location of service, geographic and population characteristics (Unduplicated counts)

The health status and risk items included on the encounter forms, and subsequently in the data files, should also be identical to the items collected from the population-at-large. Collection of these items can provide the necessary data base for assessments of progress towards alleviating the health problems of the recipient population. Moreover, these data can be compared with the same indicators in the target population and the general population to assess service impacts among those larger groups.

It is important to note, however, that establishing causal relationships between services and health outcomes requires careful development of research designs and application of statistical methods for control of confounding influences. Thus, straightforward comparisons of relative reductions in the incidence or prevalence of health problems between served and unserved groups will not support cause-

effect inferences. Nevertheless, if the data are collected, they can support general estimates of progress for reporting purposes, and can be subjected to more rigorous analyses, if resources are available.

Some sources of the three types of data sets are shown in Table 2. Information for Data Set I could be drawn from national surveys or from state surveillance systems, which will be discussed later. Data Set II could be compiled from service data systems, site visits, and program planning documents to identify the types and characteristics of services provided. Service data systems could also be used in Data Set III, the data base including all users of services. However, to determine unduplicated counts of users, the number and frequency of encounters, and risk characteristics and outcomes as well as demographic and geographic characteristics, it may be necessary to supplement the information routinely collected in program activity reports with information derived from chart audits and/or sample surveys.

Table 2

SELECTED DATA SOURCES

Data Set I:	National Surveys (HANES, NNS)
	State Nutrition Surveillance Systems
	Vital Statistics
Data Set II:	Service Data Systems
	Site Visit Reports
	Program Planning Documents
Data Set III:	Service Data Systems
	Chart Audits
	Sample Surveys

To recap:

1. The Nutrition Objectives for the Nation, specifically the indicators used to measure them, can/ should be incorporated into evaluation plans for state and local nutrition programs.

2. Program administrators have to supplement the indicators of the Objectives with other related measures in order to generate the variety of information they need to make programmatic decisions.

3. If the same indicators are used to monitor the National Objectives and to evaluate state and local programs, comparisons across different jurisdictions can be made.

4. The data required to provide five types of information for program planning and evaluation can be ascertained from three types of data sets.

Region IV Network for Data Management and Utilization

While it sometimes seems as if the data you need are not available, with a little digging you can often find much more than you expected. In fact, a major problem in many health programs is that much more data are collected than are actually used. The result of this is often a sense of being overwhelmed by data. The challenge is to turn the useful data into information and to stop collecting the data that really are not helpful.

This point was made earlier by Mildred Kaufman when she showed that many states are collecting data that could be used to construct indicators of the Objectives but they are not aggregating the data so they can be applied in useful ways. I would like to elaborate on this point with some examples of how we have begun to address this issue in MCH in DHHS Region IV.

The Region IV Network for Data Management and Utilization (RNDMU) is a Special Project of Regional and National Significance supported by the Division of Maternal and Child Health of DHHS. The RNDMU is a collaborative effort of the Department of Maternal and Child Health at the University of North Carolina, the MCH/CC Directors in the eight states in Region IV and the Regional Office in Atlanta. The purpose of the Project is to improve the planning and evaluation capabilities of perinatal and Crippled Children's (CC) programs in the Region by addressing problems in the areas of data collection, analysis, dissemination and use.

For the first nine months of the Project, we conducted inventories of perinatal, CC, and related data systems in each state. Our intention was to find out what systems were available, what they included, and how they were used. This process yielded a great deal of information that we have subsequently used as the basis for workshops, articles and technical assistance.

As in your survey, our inventories revealed that data capabilities far surpassed utilization. In the perinatal area, this was particularly true because of extensive and widely available vital statistics data sets.

To address the utilization issue, we developed a set of more than 60 indicators of perinatal health status and perinatal health services that most states could construct. Several were indicators of Pregnancy and Infant Health Objectives for the Nation. We then sponsored a workshop to which the MCH Directors, vital statistics agency directors, and perinatal program directors were invited. Most spent two days scrutinizing and refining the indicators we proposed. By the end of the workshop, they agreed on a set of 53 indicators (many of which

had never been produced by some states) to be generated, in identical format, by each state. To encourage everyone to honor that agreement, the RNDMU was asked to serve as a central collection and distribution point for the data. Several states did special computer runs to provide the data for our first request, indicating that some states' capabilities for data production are expanding.

The first perinatal data book will be distributed in August. It will include the 53 indicators by state and race, as well as interpretive sections that will provide guidance on using the data. We will work with states that did not provide some data items to help improve their capabilities.

In the CC area, opportunities for improvement are not as extensive. In general, CC programs rely on their service data systems for planning and evaluation. Since these systems only include data on clients of the program, they cannot help in identifying the extent of needs for service or how well those needs are met. Moreover, the systems are limited as to the types of data items that include measures of health outcome, and degree of automation. Obviously, with these data limitations CC programs, in general, have great difficulty in evaluating their services.

We are using a stepwise approach to addressing CC data needs starting last September with a workshop on collecting and using incidence and prevalence data on handicapping conditions. This was followed by development of a reference book with state-specific estimates of the number of children with selected handicapping conditions.(4) The estimates were derived from published sources, most from national data bases which have been available but, in most cases, had not been used by CC programs to estimate service needs. Our next step will be to work on a model CC service data set, and then we will tackle the most difficult task; measuring health outcomes.

Conclusion

The work of the RNDMU is very much addressed to "Data Needs to Measure State and Local Program Accomplishments." We are continually assessing data needs and to determine what is needed, we return to the very logical evaluation framework developed by Suchman 20 years ago. You should also find it useful for state and local program evaluation and compatible with your efforts to contribute to monitoring of the Nutrition Objectives for the Nation.

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OBSERVATIONS FROM STATE AND LOCAL HEALTH AGENCIES

New York

Janice M. Dodds, Ed.D., R.D.

In January 1985, the Office of Public Health was realigned to create a new Division of Family Health with five Bureaus in the Department of Health in New York State. In this realignment a Bureau of Nutrition was created as part of the Division of Family Health. In the Bureau of Nutrition there are three organizational units: one is the WIC program which is large and fully developed, the second is the Nutrition Surveillance Program which I will describe and the third is the Nutrition Services Program. The latter two units are funded primarily through the State legislative initiative called SNAP or Supplemental Nutrition Assistance Program. Cornell University was contracted for assistance in order to begin the Surveillance Program immediately. The work of the Division of Nutrition Sciences has been invaluable this year in both conceptualizing the approach as well as in carrying out this work.

The State initiative consists of $7.5 million to provide food for three at-risk groups of people. One group is low income women, infants and children which I will not discuss. The Health Department has a number of data sets of this population and our issue is more how to use them rather than having information. The second vulnerable group is the frail elderly which is defined as elderly people who are homebound. In carrying this out, we have worked jointly with the State Office for the Aging, the agency which coordinates Area Agencies for the Aging. The third vulnerable group is the homeless and destitute people of the state. It was determined that the soup kitchens and food pantries across the State were those who were most in touch with this group. These will be subsequently referred to as the emergency food relief sites and are the locations from which we are intending to collect information continuously to describe hunger in the State of New York.

To facilitate the surveillance effort an Interagency Nutritionist Working Group was established. This group consists of representatives from the State Office for the Aging, the Department of Social Services, and the State Education Department. The group began meeting on a bimonthly basis to discuss both the work and data that they were collecting as well as to advise us on the development of the Nutrition Surveillance Program in the Department of Health. Subsequently, the Office of Mental Health and the Office of Mental Retardation and Developmental Disability were invited to attend although representatives have not been able to attend to date. The representatives from these agencies are Nutritionists or people trained to work in the

nutrition area within their agencies.

We have approached our task of surveillance with and without existing data. There were no data describing the nutritional status of homebound elderly, so we developed an assessment form to be completed on each person enrolled in the SNAP program. The Area Agencies for the Aging included in the SNAP program were selected through a competetive RFP process. Twenty-two counties plus NYC were selected. In each Area Agency, one or two persons were designated as interviewers of the SNAP participants. 3,677 assessment forms were distributed and 2,146 were returned. A primary finding in an analysis of 165 showed that 40% of those enrolled in the program had a low weight for a height in comparison with a 15% incidence in a normal elderly sample.

Subsequently, we have looked at demographic and health data to see if we can describe the degree of frailty in a county. Dr. Richard Rothenberg and Dr. David Williamson have developed a frailty index by using five information statistics: the total population over 60 years of age, the 60+ population under 100% poverty, the number of minority persons over 60, the population above 85, and the population above age 75 living alone. Rates were calculated by dividing the statistic by the total population that was above age 60. Thus, if the minority rate was .037 in a county, it would mean we expect 37 in 1,000 elderly to be minority. These rates were added together and called the age specific frailty rate. If the number was .386, it meant that out of 1,000 elderly people 386 would have at least one of the associated demographic characteristics for which rates were calculated.

To this we added one more item from a data set which we call SPARCS in our state. It includes the tabulation of the hospital discharge diagnoses of people in the state listed by county of residence. Thus, we can determine how many people by county were discharged with diabetes, how many were discharged with hypertension and so on. The discharges are also listed by age. Dr. Daphne Roe developed three diagnostic categories which are related to nutritional status. One group consists of diagnoses effecting mobility which includes fractures, heart disease and so on. The second group includes nutrition deficiencies that have been diagnosed. Third includes the nutrition-related diseases or those that required special diets, including such diagnoses as diabetes. The number of discharges was expressed as a rate by dividing the number in the county by the total number of discharges in the state. We added this rate to the previous four rates to arrive at the Disease and Age Specific Frailty Rate.

One of the difficulties you'll see in this computation is double counting. However, the error is the same for each county and thus still allows it to be used for ranking counties and a comparative rate of frailty. When we compared the DAASF rates among the counties, we found that the highest frailty rate counties were generally not the counties that we had awarded funds to during the past year. One of the reasons is, that counties with high frailty rates often

have fewer resources and are less able to write a winning competitive proposal. We haven't had a chance to develop a way to handle this situation yet but this year we are placing special emphasis on those counties that have high frailty rates.

With the homeless and destitute we chose to use the soup kitchens and food pantries as the locations for hunger. First we enumerated all the emergency food relief sites. We did it county by county primarily by using volunteers and the state regional public health nutritionists to make the phone calls. The staff at Cornell University covered the counties which we weren't able to call. We found that there were 1266 sites across the state. By asking how many people they estimated they served a week, we came up with an estimate of meals they were serving. That number does not necessarily reflect how many people were served.

We found that in New York City there are more soup kitchens than food pantries but a higher volume of service at each site. Upstate there are many more food pantries and a smaller number of people served at each site. The result is that units of service upstate and downstate are split in half. This is interesting because people have said there is no problem in upstate New York; however, half of it exists there.

Our next step is to draw a random sample from the universal list which we know is an under representation. We will call the sample regularly for monthly figures to develop a description of service over time. This is already being done in Boston with 250 sites being called monthly.

We plan to collect descriptive information on the characteristics of the population -- age and sex. There will also be an attempt to describe the sources of food in a neighborhood in detail in order to find out how many sites we would estimate are not on our list. We've heard that in New York City, there is a lot of food distributed in very small amounts through small neighborhood churches. We want to describe this further.

Note: Drs. David Williamson, Cathy Campbell, David Pelletier, and Daphne Roe were instrumental in the development of this project.

Texas

Nancy G. Robinett-Weiss, RD, MS

Each member of this reactor panel has been asked to address two key questions:

1. What data is available for our use?

2. What do we do when we do not have all of the baseline data we need?

In order for you to have an adequate perspective on my answers/comments on these two questions, it is necessary to give you some information on Texas and the Texas Department of Health (TDH). Texas is a huge state. It has 254 independent counties which make up the 12 independent public health regions in the state. Texas has 275,416 square miles within its borders. It has a 1,248 mile long boundary with the country of Mexico. There are over 16 million people in Texas. The Texas frame of mind is one of fierce independence, suspicion of outsiders, and "things are done differently here."

The Texas Department of Health is headquartered in Austin. This is also the location of the computer system and data processing unit. Our data processing team occasionally remind me of the "bad guys with black hats." They are a difficult group with which to communicate as they primarily speak "computerize." It is also difficult to get high enough on their priority list to address my needs for nutrition related data.

The data processing team's frame of mind is very Texas oriented. They guard their data and appear to be very suspicious when approached about monitoring and surveillance. I get the impression that they perceive me as part of the "big brother" government system wanting to know too much when I talk about nutrition surveillance.

With this in mind, let me tell you what data is available for my use in Texas. First, there is the basic data available through Vital Statistics, the 1980 Census and common Maternal and Child Health indicators. There are also two Texas Behavioral Risk Factor Surveys which provide limited data on overweight, obesity, hypertension and cholesterol. These surveys were done in 1982 and 1984.

In 1983, the Texas Department of Health held a conference concerning the 1990 Objectives and how they related to Texans. At this meeting, the Nutrition Work Group decided that nutrition in Texas was at the "Healthy People" stage instead of the 1990's stage. They stated that there was essentially a lack of any baseline data on which to document progress toward meeting the 1990 Objectives. In September

1984, an effort was made to assess the progress of TDH in addressing the Texas 1990 Objectives. The Texas Health Objectives for 1990: Status Report 1984 identifies access to and appropriateness of data as the primary concern. This was certainly true for the Nutrition Objectives.

At TDH a tremendous amount of data is recorded; significant amounts are retrieved from patient charts and various reporting forms and entered into the computer system. However, not a whole lot is done with it. A prime example is our WIC data. Only those reports that are required by regulations or by one time special request are generated. There are no routine nutrition status reports available on Texas' WIC participants.

This brings me to the second question, what do we do when we don't have all (or any) of the baseline data we need? Since joining the Texas Department of Health in January, 1982, I have taken every opportunity to repeat time after time that we need baseline nutrition data and on an ongoing basis. I've formed alliances with other TDH personnel and programs that have similar needs for data. I've worked closely with our WIC staff to see that a survey of WIC participants was carried out in early 1984 to get a feel for Hunger related issues. This Survey will be repeated in early 1986. I've participated in advocating the inclusion of nutrition issues in various Task Forces in Texas, i.e., Indigent Health Care, State Employee Health Insurance, Nutrition and Wellness in State Supported Agencies.

Due to the increasing visibility and concerns about nutrition, and especially to others like myself within TDH becoming more vocal about data needs, action is being taken. A TDH wide committee has been formed to investigate the data needs of our agency. We are charged with determining where we are, which are the most useful elements, how to eliminate duplication and less useful indicators, what data is needed and how to get it.

I am optimistic that someday nutrition monitoring will occur in Texas. I see small indicators of progress toward this goal. It will continue to require networking, advocacy, documentation of need and many hours of hard work, but eventually we will have it.

St. Paul, Ramsey County, Minnesota

Katherine A. Cairns, RD, MPH

I'll be presenting information about data needs at the local level, including what type of data a local nutrition program has access to and what we do when we do not have the money or resources to collect needed data. The Nutrition Program I represent is located in a local health department sponsored by two public health agencies -- the city and the county health departments. Our local nutrition program relies heavily on the activities of the Minnesota Health Department Nutrition Section as well as the University of Minnesota School of Public Health Nutrition Program. We all work well together -- and we're all good friends. We feel it's important that we all work together -- collecting the data, sharing the data, working with the consultants, working with students, as well as working with our local and state officials to best use the data collected.

In 1983 our health department took the Objectives for the Nation and identified through every section, the objectives that each section was responsible for. Some programs took the project to heart much more than others. The Nutrition Program was one that took this assignment seriously. The Nutrition Section issues annual reports about how we are doing in meeting the Objectives for the Nation with data that identifies the status at the local and state level along with information about the national trends.

The four main data systems that we are currently using within our local health department are pediatric surveillance, pregnancy surveillance, a local nutrition data base, and special studies. We use the CDC pediatric and pregnancy survellience systems. The CDC system is the back bone for our data. We also have a very good working relationship with our local statistical consultant who assisted with the development of an internal program data system. We conduct special local studies using information from our local health board, health planning agency, vital statistics, local school districts, and voluntary health agencies.

I want to go through some of the data systems that we use and have available at the local level. With data, we are able to identify nutritional problems. This is not perfect data, but it is some background information to help our agency with program planning and evaluation.

Pediatric and Pregnancy Surveillance

We began our involvement with CDC in 1977 with the pediatric surveillance system. This did not include our WIC client visits. The

data showed very interesting trends that we are able to show nutritional status of the underweight, overweight, short stature, and anemic subgroups. A pregnancy surveillence system (CDC) also gives us a variety of data on the pregnancy outcome of our clients for evaluation and program planning. We are very concerned about the rate of anemia in pregnant women. We then target more intensive services to the pregnant women to decrease the rates of anemia.

Special Studies

Local capabilities for data analysis can be built on an excellent local resource -- birth and death certificates. These are filled out at the local level and sent to the state health department vital statistics section for further analysis. At the local level we can look at infant deaths and then look at some of the underlying conditions related to those deaths. This is part of the back bone of our infant mortality reduction project.

The metropolitan health board, which is our health planning board, also incorporates the data from surveys in conjunction with the state health department. They provide us with information on prevalence of overweight, seat belt use, exercise information for a county metropolitan area. We can then use some of that data to look at trends for our county in this health planning area.

Internal Data System

Another source of data is our school districts. We have five school districts within our county and in both school health screening programs and pre-school screening programs this information on children is included in a specially designed internal nutrition program data system. Then this data is all sent to CDC for inclusion in the pediatric surveillance system. One of the other interesting highlights of our internal data system is that it allows us to report dietary factors, census tract, ZIP and referrals. The school districts then receive information on the height, weight, anemia and dietary problems in their students. We can then use this information with parents, school districts, the local newspaper, radio, cable TV, and special nutrition education programming.

In December, 1984, we began entering the data on over 18,000 WIC screening visits into this system. This will permit further analysis of problem areas in our county. We will be able to pinpoint certain parts of town with higher rates of select nutrition problems.

In summary, there are many data systems available at the local level. These include:

- Local WIC Data
- CDC Pediatric Surveillance
- CDC Pregnancy Surveillance

- Local Vital Statistics
- State Vital Statistics
- Health Planning Board Data
- Program Data System
- Voluntary Health Agencies
- Special Local Studies

What do you do when you don't have data?

Local nutritionists and many of you frequently find that if you have the money for data, you can get anything. At the local level, and at the state level, there's always a concern that if you do not have money to get base-line information (data to help with your program planning) then how will you be able to evaluate your progress related to the Objectives for the Nation for the year 1990 and the year 2000.

Let me share some ideas with you -- all have been implemented and are workable. Ideas include:

- Plan to build a baseline in future years.
- Cooperate with other agencies to build a needed baseline.
- Interest an elected official in the issue.
- Writing a grant to fund data collection.

We have a three year plan for our health department so that planning needs can be considered with budget needs. I try to budget for an upcoming project like a special survey. These surveys are usually done in conjunction with another health department section. For example, I planned a prematurity prevention project for 1986 incorporating assistance from the vital statistics section to get baseline information. For 1987, a point of purchase restaurant and grocery store project is planned. However, we need to get more base-line data on how much nutrition information is available at schools and restaurants. Thus, I plan for the future collection of data by planning for the resources needed to do it.

In planning for the future, we as nutritionists need to plan where our future data sources should be -- and it shouldn't all be WIC clients. I am concerned that WIC program contributes over 2/3 of all our nutrition status data. We need to be more pro-active at the local level, and hopefully at the other levels, to investigate other kinds of nutrition services to diversify our nutrition data base. We need to start looking into different directions -- looking away from the WIC program and working for the future data bases to monitor the nutritional status of the elderly or other high risk groups that need to be monitored.

The second option is to look at cooperating with other agencies to build a data base. We have been working with several foundations in our area to provide a nutrition assessment component in their surveys of school-aged children, senior citizens and other surveys.

It's something you don't need to do on your own and actually creates better baseline data on the local level when the project is shared with the other cooperating agencies.

The third idea we've used with much success is interesting an elected official into looking for data on nutrition. They are a largely untapped support system. Interesting data that relates to their constituency or certain nutrition problems in the community are needed first in order to request further data collection time and dollars. I think that this is something that we have continued to build and it is this kind of relationship with our elected officials that we find is very helpful to our data collection and dissemination needs.

Then, finally, if you're doing a special project try to build in additional money in the grant so that you can get the baseline data that you have previously planned for. Put that resource request into the grant proposal.

Those are some of the actions that at the local level, we have been able to do in St. Paul. Collecting data and sharing the data with our state and local universities is not a unique concept. But our methods and uses of data collected can serve as training for future public health nutritionists. We need to show the future nutritionists the importance of quality data collection and how, with limited resources, it can be done.

"Though this be madness, yet there is method in it."
--Hamlet

WORK GROUP REPORTS:

MEASURING ACHIEVEMENT OF THE 1990 HEALTH PROMOTION

DISEASE PREVENTION OBJECTIVES FOR THE NATION

AT THE STATE AND LOCAL LEVELS

Reducing Iron Deficiency Anemia During Pregnancy

Group Leader: Connie Lotz, RD, MS

Recorder: Lee Fleshood, PhD, MPA

Opening Statement

Establishing the 1990 Objectives for the Nation is one of the most significant health accomplishments in the 20th century. State and local planning efforts should deal with the individual objectives and make a conscious decision of whether or not to use or modify an objective. The group felt that it should be emphasized that the 12 nutrition/nutrition related objectives covered in areas other than "Improved Nutrition" also should be included in state and local planning efforts.

1. Work group recommends three major objectives for states and localities to monitor: 1) national age specific standards for Hct and Hgb with accompanying percentile charts (rather than cut off values) need to be made available; 2) national objectives for reducing iron deficiency should not be limited to pregnant women and infants. Children and women of childbearing age should also be included; 3) states need to establish baseline data for Hct and Hgb at state, district and county levels and translate national targets into relevant targets at each level.

2. Known data systems that provide data to states or localities:

   - HANES
   - WIC - for women and children, only one Hct/Hgb required during pregnancy
   - MIC - log sheets, perinatal log sheets, questionnaires must be aware of potential overlap of clients in MIC and WIC
   - surveys of local health department medical records
   - Medicaid patients seen by public or private physician
   - state operated hospitals that see high risk patients
   - health care studies - such as ones by Robert Wood Johnson Foundation
   - pharmaceutical company studies on iron deficiency anemia

- family planning clinics that do pregnancy screening
- data sources mentioned in Objectives for the Nation from Public Health Reports supplement

Can also try to get information from the following:

- HMO´s
- Private corporations
- Employee health programs
- Hospital OB clinics
- community health centers - federally funded
- dietitians in private practice
- Expanded Food and Nutrition Education Programs (EFNEP)

3. Present Gaps in Data Sources:

- private sector
- patients for whom providers receive third party reimbursement
- high risk patients who do not come in for medical care or comes in late
- need to know the total number of pregnancies to determine the denominator
- data systems should monitor prevalence of iron deficiency on a continuous basis (for comparison on a year-by-year basis) as well as provide for linking individuals Hct and Hgb values over the course of pregnancy to monitor program

4. The work group recommends that ASTPHND:

A. collaborate with USDA and HHS (MCH, CDC, NCHS, NIH) to work for national standards and percentile charts for monitoring iron deficiency anemia.

B. collaborate with local health departments to:

- develop computerized medical record systems. This would be collaborative effort between state and local health departments.
- improve state and local working relationships, communication and efforts to make software and hardware compatible.
- educate local health workers about complications and/or health consequences of iron deficiency anemia, so they will realize the importance of intervention.
- provide quality orientation for new staff.
- promote quality control of equipment.

C. collaborate with Association of Faculties of Graduate Programs in Public Health Nutrition

promote more cooperative studies between Graduate Faculties and ASTPHND or states

use students to educate public about health issues of the Objectives for the Nation, such as, health fairs, media programs

target students with special interests and talents to states with those needs

encourage doctoral students to do dissertation work relative to state needs

communicate to Graduate Faculties the priorities of ASTPHND and teach students those skills. For example, students need to learn more about data uses and how to get needed data for planning, monitoring and evaluation.

D. other areas for action, including ASTHO and the private sector

work with the private sector through ACOG

depending upon states work with professional organizations, i.e., ACOG, through ASTHO or whomever private sector will respond to. Must find out what makes private sector respond to data needs of states and develop cooperation to work on statewide objectives.

develop media blitz for T.V., radio, newspaper -- look at model of MADD (Mothers Against Drunk Driving)

work/coordinate with ADA, APHA for March National Nutrition Time to use Objectives for Nation as a theme -- for example, in March 1986 use iron deficiency anemia. Also use ADA ambassadors to educate public about nutrition related health problems that states are working on.

Growth Retardation of Infants and Children

Group Leader: Mariel Caldwell, RD, MPH

Recorder: Joan McGill, RD, MS

General Discussion

While the group accepted the stated 1990 Objective regarding growth retardation it felt that the possible causes of growth retardation, besides inadequate diet, must be considered. It detailed the causes or risks for growth retardation by age group:

Figure 1

	0-28 days	28 days -1 year	1-5 years	5-9 years	9-14 years
Congenital anomalies	*				
Ethnic background	*	*	*	*	*
LBW/SGA-prematurity	*				
Due to alcohol	*				*
Due to drugs	*			*	*
Due to smoking	*				*
Maternal health (ex., hypertension, diabetes)	*				
Metabolic disorders	*				
Multiple births	*				
Structural defects and handicapping conditions (cleft palate)	*	*	*	*	*
Acute illness		*			
Allergies		*			
Anemia		*	*	*	
Child abuse/neglect		*	*	*	
Chronic illness		*	*	*	*
Drug intake of infant/child (ex., steroids)		*	*	*	*
Drug/nutrient interaction		*	*		
Dwarfism		*			
Eating disorders		*	*	*	*
Environmental factors		*	*	*	*
Early pregnancy				*	*
Rheumatoid arthritis					*
Inappropriate feeding		*	*	*	
Infections		*	*	*	*
Nutrient abuse (ex.,Vitamin A)		*			
Rickets		*			

Figure 1 -- Continued

Allergy diets (restricted diet)	*		
Dental problems	*	*	*
Inadequate food availability (1-due to economics, 2-due to parental choice)	*		
Malabsorption (ex., celiac)	*		
Cancer/Leukemia		*	*
Fad diets/inappropriate food choices		*	*
Juvenile onset diabetes		*	*
Mental retardation		*	*
Poor self food selection		*	*
Renal disease		*	*
Rheumatic heart disease		*	
Seizure disorders		*	*
Stress			*

* This table is not complete as some risks may be present in age groups not identified by the group due to time constraints.

1. Objectives Work Group recommends as most important for states and localities to monitor.

   A. By 1990 growth retardation of infants and children caused by inadequate diets should have been eliminated in the U.S. as a public health problem.

   B. By 1990 the incidence of retarded growth will not exceed commonly accepted standards appropriate for selected populations.

   The work group urged that populations with the above risks not be excluded from monitoring because they may not meet the standards set for the "normal healthy" population.

   The following were determined as commonly accepted growth standards:

   1) NCHS growth grids

   2) New CDC standards based on WHO standards

   3) Down's syndrome grid

   4) Growth velocity grid

   5) Maturity growth grid

   6) Prematurity growth grid

7) Mid arm circumference tapes

8) Skinfold calipers

9) Appropriate height and weight measuring tools

Acceptable measures of growth retardation include:

1) Weight for height

2) Height for age

3) Weight for age

4) Head circumference

5) Mid arm circumference

6) Bone age

7) Gestational age

8) Food intake based on RDA's

The group did not specify just one definition of growth retardation but instead narrowed the possible definitions to the following:

1) Below the third, fifth, or tenth percentile in weight/height, weight/age, or height/age.

2) Other appropriate measures for handicapped children.

3) Growth pattern needs to be considered when a definition is finalized.

2. The group had time only to state the data elements which need to be monitored in terms of reducing growth retardation. The minimal elements include:

1) Height

2) Weight

3) Age

4) Ethnicity

5) Birth weight

6) Medical conditions

7) Socio-economic status

It was felt that in many instances we should be looking at subsets of the population (for example, when looking at handicapped children) that other elements could be included in special studies. These include:

1) Diet scores

2) Multiple births

3) Alcohol/drugs

4) Marital status

5) Occupation of parents

6) Level of mother's education

7) Height of parents

8) Weight gain in pregnancy

9) Birth order

10) Origin of birth

11) Program participation (ex., WIC, well child care)

3. Collaborative Efforts

The group recommended that the ASTPHND data committee work with ASTHO to include growth parameters in the National Crippled Childrens Reporting System.

Obesity/Overweight

Group Leader: Jean Collins Sanford, RD, MS, MPH

Recorder: Connie Auran, RD, MS

1. Objectives. Work Group recommends as most important for states and localities to monitor.

The obesity work group reviewed specific objectives found on pages 75-76 in the nutrition section of Promoting Health Preventing Disease -- Objectives for the Nation. We discussed in detail objectives *C and *D under the section "Reduced Risk Factors." We briefly discussed objectives 1 k, under the "Increased/public/professional awareness;" and objectives 1, m, n, o, p, under the section "Improved services/protection;" and objective q, under the section "Improved surveillance/ evaluation system."

Of the objectives discussed the group considered objective 3c to be the most important for states and localities to monitor. However, the group felt strongly that weight loss should not be promoted for all individuals. In the field this objective has been inappropriately used to promote weight loss among infants, elderly, pregnant women, and teenagers. There was considerable discussion that we could be creating morbidities by overdoing weight loss promotion (e.g., underweight elderly, bulemia, anorexia and inadequate preconceptual nutritional status).

3*c. By 1990, the prevalence of significant overweight (120 percent of "desired" weight) among the U.S. adult population should be decreased to 10 percent of men and 17 percent of women, without nutritional impairment. (In 1971-74, 14 percent of adult men and 24 percent of women were more that 120 percent of "desired" weight.)

*NOTE: Same objective as for High Blood Pressure Control.

3d. By 1990, 50 percent of the overweight population should have adopted weight loss regimens, combining an appropriate balance of diet and physical activity. (Baseline data unavailable.)

The group recommended that objective 3d be removed for further study. The work group reasons for removing objective 3d were that it is potentially harmful to the public health, too simplistic, unrealistic, and not measureable.

The group further recommended that:

A. NIH Promote research on

1) efficacious weight loss (short term and long term)

2) weight loss maintenance models

3) indicators for who should undertake various weight loss regimens

B. NIH hold a concensus conference in 1988 to address:

1) specificity of subgroups for targeting weight loss/control programs

2) appropriate methodology for weight loss and maintenance of weight loss

2. Specific data elements needed to monitor these objectives:

The obesity work group agreed that the following data elements are needed to monitor nutrition objective 3c:

- Ethnicity/race
- Age
- Health effect -- presence of other risk factors
- Height
- Weight
- Girth
- Triceps skinfold
- Weight loss history
- ICDA codes for pre-existing disease
- Current medical treatment

3. For gaps or inadequate data at present, the Work Group recommends that ASTPHND:

A. Collaborate with USDA and HHS (MCH, CDC, NCHS, NIH)

The group requests that NCHS add girth to the HANES.

The group also requests that NIH do longitudinal research on a national sample to determine the relationship of an individual's weight (loss, gain, and/or maintenance) to health status. Nationwide tracking is necessary due to mobility of population.

See other recommendations for NIH under 1 above.

The group requests that HANES data be reported in a timely fashion.

B. Other areas to act, including ASTHO or the private sector: Group leader shared unpublished research by Gortmaker, Dietz and Sabol. Group requests research be shared with ASTPHND.

Promoting Dietary Guidelines in Schools and Work Sites

Group Leader: R. LaJeune Bradford, MS

Recorder: Gaye Joyner, RD, MS

1. Objectives considered by Work Group as most important for states and localities to monitor:

   - By 1990, at least 30% of the employees at work sites of 50 or more employees will have participated in a health promotion program that encourages food consumption patterns consistent with the Dietary Guidelines.
   - By 1990, all states will include a Nutrition Education Component that includes the dietary guidelines as part of the K-12 school curriculum.

2. Data needed to monitor objectives:

   (A-D relate to objective 1-A; E relates objective 1-B)

   A. Number of work sites that employ 50 or more employees and number of employees per site.

   B. Number of work sites that offer a health promotion program.

   C. Number of employees who participate in health promotion program.

   D. Number and types of agencies that provide health promotion programs.

   E. Each state will be responsible for establishing a procedure to review the school curriculum and tabulate results.

3. Group recommends that ASTPHND proceed to fill in gaps in data by:

   - Collaboration with USDA, HHS, (MCH, CDC, NCHS, NIH); Departments of Education (national and state levels); Department of Labor; American Heart Association (Heart at Work Program); Better Business Bureaus; Blue Cross-Blue Shield and other appropriate insurance companies; and Occupational Health and Medicine Programs.
   - Collaboration with local health departments and local chambers of commerce.
   - Collaboration with Association of Faculties of Graduate Programs in Public Health Nutrition and university affiliated health promotion programs.

   All of the above agencies may have data needed to establish baseline data for objectives 1-A and 1-B. Survey form to collect data to evaluate objectives will have to be developed.

Adult Serum Cholesterol

Group Leader: Frank Lo Guidice, MA

Recorder: Sheryl L. Lee, RD, MPH

1. In reviewing the 1990 Objectives, or other documents such as individual state objectives or Model Standards, which objectives does your Work group recommend as most important for states and localities to monitor? Include outcome (health status), impact (behavior or knowledge), process (activities) and structure (fiscal, personnel, etc.) objectives as appropriate, in your topical area, and estimate a measurable objective, if possible.

   Outcome:

   Elevated blood cholesterol level is a major cause of coronary heart disease. It has been established beyond a reasonable doubt that lowering elevated blood cholesterol levels will reduce the risk of heart attacks. Blood cholesterol levels of most Americans is undesirably high largely due to the high dietary intakes of calories, saturated fats, and cholesterol. Appropriate changes in the American diet will reduce blood cholesterol levels. For these reasons the work group concurs with the 1990 objective that: "By 1990, the mean serum cholesterol level in the adult population aged 18 to 74 should be at or below 200 mg/dl.

   In order to accomplish this objective, states/localities will need to have:

   A. an objective to "Reduce serum cholesterol levels in adult population to 180-200 mg/dl;"

   B. data reporting system for cholesterol; and

   C. intervention strategies.

   Impact

   A. To educate physicians, other health professionals, and the public to the significance of elevated blood cholesterol (that elevated blood cholesterol is a risk factor for coronary heart disease) and the importance of treating it.

   B. To advise all Americans (except children under two years of age) to adopt a diet that reduces total dietary fat intake from the current level of about 40 percent of total calories to 30 percent of total calories, reduces saturated fat intake to less than 10 percent of total calories, and reduces daily cholesterol intake to 250 to 300 mg or less. Intake of total calories be reduced, if necessary, to correct obesity and

adjusted to maintain desirable body weight. For individuals with elevated blood cholesterol, special attention should be given to the education and management of other risk factors (hypertension, cigarette smoking, diabetes, and physical inactivity).

C. To begin earlier awareness of risk factors in pediatric and adolescent populations and to utilize a "family approach" to risk reduction.

Process

A. States/localities should maintain a cholesterol reporting system to monitor cholesterol levels in the adult population.

B. Market the concept particularly with private physicians to encourage health professionals to include a blood cholesterol measurement on every adult patient when that patient is first seen and report this data.

C. States develop strategies which include agressive marketing and involvements with state and local heart associations, professional organizations and others in implementing recommendations of the National Institute of Health Consensus Development Conference Statement Lowering Blood Cholesterol to Prevent Heart Disease, 1984.

Structure

Cost should not be a major factor when weighing the benefit and value of collecting cholesterol data and the ultimate outcome of reduction of heart disease and health care costs. Funds from the Prevention Block Grant should be used to accomplish part of this outcome objective.

2. What specific data elements are needed to monitor these objectives (identify target populations, period or frequency of measurements, type of measurement instruments, or primary data sources, and any known data system that provides such data to states or localities)?

A. Data elements collected from individuals that are needed to monitor this objective are:

1) total blood cholesterol

2) body weight

3) height

To ensure reliability of data, standardized methods for cholesterol measurement in clinical laboratories as implemented

by Centers For Disease Control and monitored by State Laboratories' is recommended.

B. The target population is the adult population between 18 and 74 years of age. Specific attention should be given to:

1) males 40 years and older.

2) females 50 years and older.

3) individuals who have other (multiple) risk factors in addition to elevated blood cholesterol.

C. Frequency of assessment for total cholesterol is yearly. Weight is monthly, yearly, or as required. (Reporting of weight should be at the same interval as other objective data).

D. Known sources that could provide such data to state or localities are:

1) hospitals

2) health maintenance organizations (HMO's) or other programs completing general health assessments.

3) CDC Surveillance reporting system.

4) HANES and NCHS.

5) NIH/NHLB - lipid research clinics.

6) Local health agencies with health promotion programs.

3. Where there are gaps or inadequate data at present, how does the Work Group recommend that ASTPHND proceed?

A. Collaboration with USDA and HHS (MCH, CDC, NCHS, NIH):

Develop liasions/partnerships with and provide consultation/technical assistance to:

- Department of Education
- American Heart Association
- American Medical Association
- American Public Health Association
- American Academy of Pediatrics
- Others

in implementing strategies and programs based on recommendations of Consensus Panel on Lower Blood Cholesterol, etc.

B. Collaboration with local health departments:

Develop partnership and support funding of services. Develop a structure within each state to collect data and develop a system for monitoring of cholesterol information and other risk factor levels (indices).

C. Collaboration with Association of Faculties of Graduate Programs in Public Health Nutrition:

1) Continuing education programs -- promoting and furthering understanding of this subject.

2) Cooperative efforts between our two groups with other professional organizations to promote this objective (i.e., ADA, AMA, ANA).

3) Insuring information in text books and literature are current with the state of practice.

4) Assist in applied research projects especially validating methodologies being used.

D. Other areas to act, including ASTHO or the private sector:

1) ASTHO -- commitment by ASTHO to support cholesterol assessment for adults and make it reportable.

2) Insurance Companies -- encourage implementation of a "healthy insuree premium" policy.

3) Food Industry -- focus on recommendations for food labeling; develop and market foods that foster adherence to the recommended diets; advertising be directed toward diet changes, etc.

Conclusion

All states should make concentrated efforts to record, collect and report cholesterol data. Funding sources should be identified and secured to complete this effort.

Nutrition Education in School Health Education Services

Group Leader: Beth Duncan, RD, MS, MPH

Recorder: Mary Ann Farthing, PhD, RD

Priority Objective #1: School Age Children, 5-18 Years

1. Focus -- P-4. (p. 70). By 1990, based on the assessment of nutritional status and dietary practices, nutrition education programs will be provided to children, parents, school personnel, and other child care providers.

2. Data elements needed:

   A. baseline data on nutritional status and dietary practices of school age children 5-18 years

   B. primary data sources:

      1) USDA: National Food Consumption Survey

      2) USDA: National School Lunch Survey

   C. other data sources:

      All units which administer Nutrition Education and Training (NET) Program funds must conduct periodic needs assessments. An assessment of nutritional status is more often not included in NET needs assessments but could become a source of such data.

3. Gaps or inadequate data:

   There appears to be inadequate planning at the highest level, i.e., between state superintendent of public instruction and state health director, and federal agencies at the national level.

   State officials indicated in #3 could collaborate in collecting data to augment that provided by USDA (school lunch survey, etc.) and DHHS.

   A. The school health program should be planned in collaboration with the local health department. For example, the health department could provide inservice education in the appropriate use of growth charts and how to use this data. Another example would be appropriate use of the information from health evaluations of athletes.

      The health department could also recommend to schools standards for periodic health status evaluations which should

include assessment of nutritional status and dietary practices.

B. Collaboration with Association of Faculties of Graduate Programs in Public Health Nutrition:

Graduate faculties should consider, and if possible, provide, continuing education or graduate courses in nutrition education with health emphasis for teachers.

C. Other areas for action, ASTHO, etc.

It is recommended that state health directors and state superintendents of public instruction work to promote the inclusion of courses in nutrition in the curriculum of institutions which train teachers for the public schools.

Priority Objective #2: Health Promotion and Protection

1. Focus -- 1g. (p. 56). By 1990, each institution will provide food which meets each individual's nutritional needs, including medically-indicated special dietary needs.

2. Data elements needed:

   A. numbers of children with special dietary needs

   B. who are they? (demographic data)

   C. health status information: What are health problems requiring medically indicated dietary modifications?

   D. Information for appropriate school personnel on sources to which appropriate referrals can be made.

3. Gaps or inadequate data:

   A. paucity of data from USDA, DHHS, etc.

   B. Collaboration with local health departments:

   Public health nutritionist can serve as a resource person to the public health nurse, and can provide information regarding necessary dietary modifications to parents, teachers, and school food service managers.

   C. Collaboration with graduate faculties:

   Assure that nutritionists have had adequate training in nutritional care for chronically ill or medically/physically handicapped children requiring dietary modifications.

D. Other areas for action, ASTHO, etc.

It is recommended that health directors plan and identify services to meet the needs of chronically ill or medically handicapped children.

Priority Objective #3: Cariogenic Foods

1. Focus -- P-6. (p. 33). By 1990, at least 50 percent of the food offered in vending machines in the community's public buildings will be noncariogenic and be so identified.

2. Data elements needed:

   No baseline data is available. Determine for states and local communities, the numbers of vending machines providing cariogenic foods in schools and health departments.

3. Collaborate with USDA and DHHS in any data collection efforts.

   The local health department should collect data on its own use of vending machines and use in the community. Leadership should be provided for a cooperative community wide effort in education on more appropriate foods for these machines.

   Graduate faculties can promote research in the use of vending machine items, i.e. impact on nutrient intake, etc.

   ASTHO can promote policies which encourage health agencies to be more active in the area of improving nutritional status. If legislation is needed, ASTHO should work with other agencies to get such legislation passed.

(The group also supported dietary counseling related to dental health, but recognized that it could be provided under priority objective; P-4, p. 70).

Knowledge of Dietary Factors Related to Heart Disease, Hypertension, Dental Caries and Cancer (Fat, Sodium, Sugar, Calories, Fiber)

Group Leader: Gladys Matthewson, RD, MS

Recorder: Juan M. Navia, PhD

Opening Discussion

The session started with a discussion of the relation between foods (nutrients) and disease (or health) and the degree to which the public is aware of such relationship. It has been stated that 12% of the population is probably aware that disease processes are influenced by nutritional practices but this figure is probably higher today. What seems to be the case is that there is a discrepancy between behavior and knowledge. For this reason, the data needed to measure progress toward the achievement of the 1990 Health Promotion/Disease Prevention Objectives has to be determined at the level of knowledge of the association of specific dietary habits and certain diseases, and, at the behavioral or practical level of application.

1. The work group recommended the following four major objectives as most important for states and local nutrition programs to monitor to assess knowledge:

   A. By 1990 ___% of the population should be able to relate the following dietary factors to specific diseases:

      - Sodium to high blood pressure
      - Fiber, fats to cancer
      - Cholesterol to heart disease
      - Fermentable carbohydrates to dental caries

   B. By 1990 ___% of the population should express a positive attitude toward changing their own diet to improve health.

   C. By 1990 ___% of the population will be able to identify major food choices and dietary practices related to the prevention of risk factors.

   D. By 1990 ___% of the population will report improved dietary intake of selected nutrients.

2. Specific data elements needed to monitor the objectives identified:

   A. Population sector identified: adults.

B. Period or frequency of measurements: six months to one year.

C. Suggested primary data sources:

1) For high blood pressure and sodium intake:

- Multipurpose Consumer Survey (FDA)

2) Relation of fat, sodium, calories, sugar and fiber:

- Multipurpose Consumer Survey (FDA)
- Biennial Food Product and Labelling Survey (FDA)
- Nationwide Food Consumption Survey (USDA)

3) Weight reduction approaches:

- National Health Interview Survey (NCHS)

4) Other possible data sources:

- (EFNEP) Expanded Foods and Nutrition Education Programs to look at specific food intake, food preparation, and other parameters of behavior.
- Local official and state agencies (lifestyle data)
- State health risk reduction data gathering systems
- National Cancer Institute (NCI)
- Agricultural boards (State and Private)
- Marketing research
- Categorical program management information systems
- Voluntary organizations
- Worksite programs
- WIC data systems
- Telephone surveys

3. Recommendations for collaborative efforts:

A. Collaboration with federal programs and agencies should be enhanced and stimulated. Local efforts provide services; national programs supervise and monitor nationwide efforts thus different goals are complemented.

1) National monitoring system that can meet the needs of state and local programs.

2) State programs lack selected nutrient data (USDA) about individual food intake.

B. Local health departments should collaborate with state health agencies and departments of public health nutrition in universities.

1) Knowledge about the eating habits of adults.

C. Request graduate faculties to conduct methods research in above stated gaps in our knowledge, i.e.,

1) An academic focal point for health promotion programs, and/or research and demonstration centers.

2) Data from longitudinal studies, as well as limitations on the periodicity of reports (need of timely reports).

D. If model standards are to be implemented they should be planned in collaboration with ASTHO National Reporting System.

1) Validation of dietary systems (biochemical and otherwise).

There was a consensus that prior to the implementation of an intervention program, state and local agencies need to evaluate the sources of data available (undertake a "need assessment") to measure impact. Programs initiated at the National level rely on state and local programs to develop effective measures for evaluation objectives.

Breastfeeding Promotion

Group Leader: Elizabeth Brannon, RD, MS

Recorder: Catherine Cowell, PhD

1. Objectives Work Group recommends as most important for states and localities to monitor.

   Concurred with 1990 Objective: Increase breastfeeding at hospital discharge to 75%.

   Concurred with 1990 Objective: Increase breastfeeding at 6 months to 35%.

2. Specific data elements needed to monitor these objectives:

   Target Population

   - Postpartum Women
   - Infants

   Frequency

   - 6 weeks postpartum
   - 6 months

   Measurement Instruments

   - Mail records
   - Telephone

   Primary Data Source and Known Data Systems

   - WIC
   - Family Planning Clinics
   - Hospital discharge data
   - Immunization Clinics
   - Well Child Clinics
   - Newborn Metabolic Screening Records
   - Pediatric society survey
   - Occupational Health nurses (Industrial)
   - "Ross" survey
   - Federal Agencies - Office of Occupational Health
   - NCHS Surveys

3. Work group recommendations for ASTPHND to obtain data not currently available.

   A. DHHS

Medicaid (Funding mechanism for prenatal care)

National Survey Family Growth - infants at 6 months

CDC - need to ask one or two questions about breastfeeding in Risk Assessment Survey

B. USDA

WIC

Cooperative Extension - EFNEP Program

C. Linkage with local health departments, community health centers, HMOs, visiting nurses associations (home visits), migrant clinics, patient encounter forms (used at local clinics), home based Head Start Programs (home visitor)

D. The 30 Graduate Schools of Public Health - commitment to utilize students doing field work in data collection, especially about breastfeeding and other pertinent topics.

E. Other.

ASTHO's National Public Health Reporting System - revised form has questions on breastfeeding (encourage states to complete data)

need to educate health providers - Ob-Gyn, Pediatricians, Family Physicians (especially wives of MDs)

Ear Nose Throat specialists - identify school children with high incidence of ear infections to see if they were breastfed

Healthy Mothers/Healthy Babies Coalitions at state and local levels

Nutrition Included in Health Professional Contacts

Group Leader: Colette Zyrkowski, RD, MPH

Recorder: Adela Dolney, RD, MS

1. Objectives Work Group Recommends as Most Important for States and Localities to Monitor

   It is apparent that the objective has high priority; however, the issue is the lack of baseline data in order to measure the objective as well as not having a base for collecting follow-up data.

2. Specific Data Elements Needed to Monitor These Objectives

   - This objective addresses the entire population and should be measured every three years.
   - Potential data sources include the visits and services provided by WIC, EPSDT, Family Planning, Prenatal, Child Health, Crippled Children's and Genetics programs. Additional sources may include those private professional visits to dentists, physicians and pharmacists. NCHS may offer a potential vehicle for collection of the data.
   - Another measurement needed to be monitored is the amount of nutrition education in the curriculum of various health professionals. The Bureau of Health Professions may offer assistance in this area.

3. Gaps or Inadequate Data At Present

   The Work Group recommends that ASTPHND:

   - Collaborate with USDA and HHS (MCH, CDC, NCHS, NIH). Agencies that may have some helpful data: Community Health Centers, Indian Health Service, Migrant Health. Work with Bureau of Health Professions to determine depth of nutrition education.
   - Collaborate with local health departments. Assist in precise definition of data needs (what is a health contact?)
   - Collaborate With Association of Faculties of Graduate Programs in Public Health Nutrition. Education for students should include marketing and data collection. Recommend that Schools of Public Health include nutrition as a core course.

D. Other areas for action

   Work with ASTHO and professional organizations to develop appropriate nutrition data questions in general surveys.

AVAILABLE NATIONAL HEALTH AND NUTRITION DATA BASES

Available National Health and Nutrition Data Bases Useful for Nutrition

Mary Grace Kovar, DrPH

I want to present two points. The first is sources of data. The second is how to use national data, or data from any source, to make estimates for your own state or smaller area. I will talk only about National or generally available sources that most of you can obtain. There are too many local surveys and other specially-designed local sources for me to cover. Let me begin with a table that we can use to classify sources of data. While I have put specific sources on the table, it is designed so that you can use it to classify data for yourselves.

Figure 1

CLASSIFCATION OF SOURCES OF DATA

		Coverage	
		Complete	Sample
Source	Records	Births Deaths	NHDS NAMCS NNHS NNFS
	People	Decennial Census	NHANES NFCS CPS NHIS CES SIPP

NHDS: National Hospital Discharge Survey
NAMCS: National Ambulatory Medical Care Survey
NNHS: National Nursing Home Survey
NNFS: National Natality Follow-back Survey
NHANES: National Health and Nutrition Examination Survey
NFCS: National Food Consumption Survey

CPS: Current Population Survey
NHIS: National Health Interview Survey
CES: Consumer Expenditure Survey
SIPP: Survey of Income and Program Participation

We can obtain data from records about events, or from people about individuals or families. Coverage can be complete as in the Vital Registration System for births and deaths or the Decennial Census of Population and Housing, or it can be from a sample of events such as hospital discharges or visits to physicians or a sample of people such as the nutrition surveys or other population-based surveys. Those are examples. You could use WIC records or Medicaid records or children enrolled in school if they would serve your purpose.

In general, we can collect a little information about a lot (or all) of the people or a lot of information about relatively few people. The major constraint is cost. Data collection is expensive, and the more complex the data the more expensive it is to collect, process, tabulate, and interpret. There are other constraints. One wants to have precisely the same measurements using the same techniques for everyone. It is extremely difficult to achieve that as the number of people or observation points grows larger.

The result is that we have very few data-collection systems that involve everyone or every event and quite a few that are based on samples. We rely on the surveys for most of our detailed information.

The United States is fortunate in having the oldest census system in the world that has never missed its scheduled data collection. Beginning in 1790 and every year ending in zero since then, we have had a population census. The most recent was in 1980 and planning for the 1990 Census is well under way.

The history of the Vital Registration System is as old; deaths were registered in the Massachusetts Bay Colony. However, in 1915 there were only 26 states in the death - registration area and only 10 in the birth registration area. It was not until 1933 that all 48 states were in both (registration must be 90 percent complete for a state to be admitted to a registration area). Planning for the next revision of the Standard Certificates is also underway.

The Decennial Census provides no nutrition data. It does, however, provide you with the population to combine with other data so that you can make estimates of the population at risk or to compute rates.

Although it is not always obvious, we rely on the Decennial Census to anchor all the other systems. If you are using records, whether a complete system or a sample, for the numerators, you need the Census-based populations for the denominators. If you are using population-bases sample-survey data, the Census-based population

estimates are built into both numerator and denominator, but you need the local population estimates to apply to the rates from the National systems. The major disadvantage is that it is done only every ten years.

Vital Statistics data, which are truly local data collected in counties and states and then transmitted to the National Center for Health Statistics for uniform tabulations, provide at least indirect measures. For example, the number of low-birth-weight babies, the number of full-term babies who are low-birth-weight, the age, race, marital status,and educational level of their mothers and where they live are all available from birth certificates. The number of deaths by the cause of death, the age, race, sex of the decedents and where they lived are all available from death certificates. Until recently they were of limited use because very few people have malnutrition coded as the cause of death. The introduction of multiple cause coding has increased their usefulness because malnutrition can be coded as a contributing cause. You can also find out where the babies were born and where the people died -- in hospitals or at home. You can look at county of residence and county of occurrence to determine what proportion crossed county lines for the event. From these certificates there is a wealth of information that is too seldom used.

Hospital records, clinic records, and other provider records can be used for estimates of people receiving services of nutrition-related problems. Heights and weights are almost universally recorded during an encounter with a provider; they can be used to calculate body mass indexes. I have listed these under samples because the NCHS has national sample surveys. You can use NCHS data either to calculate "synthetic" estimates for your area or, if you use data from your own providers, to make comparisons. The technical feasibility of obtaining hospital-based data is increasing rapidly as hospitals automate their records. Other providers are not so automated; obtaining data from them is technically more difficult.

Several of the national population-based surveys in addition to nutrition surveys provide data that could be useful to you. I have chosen surveys where the U.S. Bureau of the Census acts as data collection agent regardless of who tabulates and publishes the data.

The Current Population Survey (CPS), conducted for the Bureau of Labor Statisitics, is designed to obtain information on unemployment and labor force participation. Data on unemployment, marginal employment, and wage rates are useful in themselves for estimating populations in need of nutritional support. In addition, there is a supplement to the CPS every month; many of these supplements also provide useful data - fertility histories are always on the June supplement and annual incomes on the March supplement. Child support, use of day care, and other topics are covered less frequently. The labor force data are published by the BLS; most of the other data are published by Census in Current Population Reports. This is, the oldest continuing population-based sample survey in the world as far as I know.

The National Health Interview Survey (NHIS) is conducted for the National Center for Health Statistics. It is the world's second oldest continuing survey having been continuously in the field since July, 1957. The purpose is to obtain data on health, use of health services, accidents and injuries, impairments, and a host of other health-related items. If you want to know the characteristics of people who are not receiving medical or dental care (and who would not be reached by intervention strategies dependent on medical-care facilities), that is the place to look. It is the source for information on people who cannot see or hear well, the health characteristics of people who live alone, the incidence of colds and flu, the number of days people miss from work or school, the number of people who cannot work because of their health - the list goes on and on. Those data are collected every year.

There are annual supplements on specific topics. Data on smoking practices, health insurance coverage, lack of teeth have been collected several times. Data on people who cannot do their own shopping or cooking because of a health condition were collected in 1979, 1980, and 1984 and will be collected again in 1986. Data on children's use of vitamin and mineral supplements were collected as part of the 1981 Child Health Supplement, and a much more extensive battery of such questions will be on the survey in the first three months of 1986. The 1981 data revealed, for example, the high use of vitamins and minerals by children in the United States; about 36 percent of all children under the age of 18 had received such supplements during the two weeks before the interview. The 1985 supplement is designed to collect information to track the 1990 goals for Health Promotion and Disease Prevention. The nutrition goals are included. Data from this survey are published in Vital and Health Statistics, Series 10.

The Consumer Expenditure Survey (CES) is designed to collect price and expenditure data. From that survey you can discover how much money families are spending on food and what they are buying. Because the survey is designed to collect information on all expenditures rather than just food, you can determine what portion of their money they are spending on food relative to other items.

A relatively new survey, the Survey of Income and Program Participation (SIPP) may be the one you are least likely to know about. It is a panel survey that people remain in for 2.5 years. It is designed to follow people, the changes in their family status and income, and the changes in their participation in public programs, including the receipt of Food Stamps, over the course of time. It is new; very little data are available yet. Recently published data reveal that during the average month of the last quarter of 1983, 7.6 percent of the nonfarm households had one or more members who received Food Stamps, 7.1 percent had children who received free or reduced-price school meals, and 1.4 percent had someone participating in the WIC program. Households participating in one of these programs were more likely than other households to be participating in another(2). For example, 52 percent of the households where someone was receiving Food Stamps had someone in the WIC program. I believe that once the data

from this survey start becoming widely available and people learn how to use them, they will change the way we think because they will enable us to study relationships.

There are other surveys. This is not a complete review. I wanted to give you an idea about some of the surveys and how you can use data from them in ways that the planners of the surveys might not have anticipated.

That leads to the second point I wanted to make. I have told you about national data. Most of you have very specific local concerns. How can you use data about the entire country to answer your questions? To use national survey data to make local - area estimates, you must assume that the rate of the characteristic of interest is the same in the local area as it is in the United States. While this assumption may or may not be valid, it does usually produce an estimate for planning that is considerably better than guessing. Further, it is valid more often than many people realize, and it is very useful for comparing one area with another.

In essence, one simply multiplies the number of people in the local area by the national rate to produce the desired estimate. In practice, some part of the information you want may be missing and you have to make certain decisions and assumptions before proceeding.

The first decision is whether the population counted in your area in the 1980 Census is still the population at the present. If you decide that it is the same (and that is a valid assumption in areas of low migration), you are ready to proceed. If you think that it is not, you must update the population estimates. Fortunately, most states have state demography offices and procedures for updating. I suggest that you consult them.

Assumptions are often needed as a result of not having published data by the specific categories that you want. You may think that, say, income is the most important determinant of nutrition status. We have published the data only by age and sex or race. You can either trust us to have investigated the relationships (we try to tell you), or you can obtain the public-use data tapes and tabulate the data for yourselves. If you accept that we have investigated and decided that age, race, and sex are important while income, once those three are controlled for is not, then you assume that the rates that we have published are appropriate for your area. The rest is arithmetic.

Let me illustrate with data from two surveys and a hypothetical area named "Zip". The data and results are given in Tables A and B.

Table A

EXPECTED NUMBER OF FEMALES AGES 20-74
IN AREA ZIP WHO ARE OVERWEIGHT

	Percent Overweight	Area ZIP Population	Expected number overweight in Area ZIP	
	NHANES II		Age	Total
White females				
Age				
20-24	9.6	100	10	
25-34	17.9	200	36	
35-44	24.8	200	50	
45-54	29.9	150	45	
55-64	34.8	100	35	
65-74	36.5	50	18	
Black females				
Age				
20-24	23.7	100	24	
25-34	33.5	250	84	
35-44	40.8	20	81	
45-54	61.2	150	92	
55-64	59.4	50	30	
65-74	60.8	50	30	
				535
All females 20-74	27.1	1600	...	434

Sources: NCHS, second National Health and Nutrition Examination Survey, 1976-80 U.S. Bureau of the Census, Area Zip population (hypothetical)

Table B

EXPECTED NUMBER OF FEMALES AGE 45 AND OLDER IN AREA ZIP NEEDING HELP WITH SHOPPING AND MEALS

	Percent	Area Zip Population	Expected number in Area Zip	
	NHANES II		Age	Total
Shopping				
White females				
Age				
45-64	1.9	450	9	
65-74	5.1	100	5	
75-84	13.6	75	10	
85 and up	35.1	50	18	
				42
All females 45 and older				
	5.0	575	...	29
Meals				
Females				
Age				
45-64	1.2	450	5	
65-74	2.5	100	3	
75-84	7.1	75	5	
85 and up	22.1	50	11	
				24
All females 45 and older				
	2.8	575	...	16

Sources: NCHS, National Health Interview Survey, 1979-80 U.S. Bureau of the Census, Area Zip population (hypothetical).

According to data from the second National Health and Nutrition Examination Survey (NHANES II) conducted in 1976-80, 27 percent of the females ages 20-74 in the civilian noninstitutionalized population of the United States are overweight (women who were pregnant when examined are excluded). (See Figures 1 and 2) If you assume that there are 1600 women in Area Zip, you would estimate that 434 are overweight simply by multiplying 1600 by 0.27. However, from the Census of this area (or from updated estimates) you know something about the ages and race of the women. Using that information and multiplying the number of women in each age-race group by the rate for that group, you find that the estimated number of overweight women is 535 - 23 percent more women. The estimates are different because I took all the information that I had into account to make the second one, and part of that information was that the women in Area Zip are more likely to be black and are somewhat older than in the United States as a whole.

Similarly, according to data from the National Health Interview Survey that were collected in 1979-80, 5 percent of the women age 45 and older in the civilian noninstitutionalized population needed help with shopping (Table B). If I multiply 0.05 by the number of women age 45 and older in Area Zip, I estimate that 29 women of each age, I estimate that there are 42 women who are living in the community and need help with shopping. The comparable figures for needing help with meals are 16 and 24. The reason for the higher estimates when I take age into account is that there is a higher proportion of very old women in Area Zip than in the United States. (See Figure 3)

By taking the characteristics of the population of the area into account, the national data can be used for local- area planning. You can do the same thing with hospital discharges for nutritional diseases or any other kind of data that you find useful.

Conversely, if you actually have data for your area, say on people receiving food stamps, you can use the same kind of arithmetic for the national data and determine whether your area is "overserved" or "underserved" in comparison with the rest of the country. The uses are limited only by your imagination.

It is important, however, to use all of the information you have about the population of your area to use the national data effectively. It is equally important to obtain the most specific national data that you can use. It is knowing and using the distribution of the population in your area that makes the data specific for you.

Figure 1

PREVALENCE OF OVERWEIGHT IN PERSONS 20-74 YEARS

	Number	Percent
Males	15,385,000	24.2
Females*	18,592,000	27.1
Total*	33,977,000	25.7

* Pregnant women excluded.
Source: National Center for Health Statistics, second National Health and Nutrition Examination Survey, 1976-80.

Figure 2

PERCENT OF FEMALES* OVERWEIGHT BY RACE AND AGE

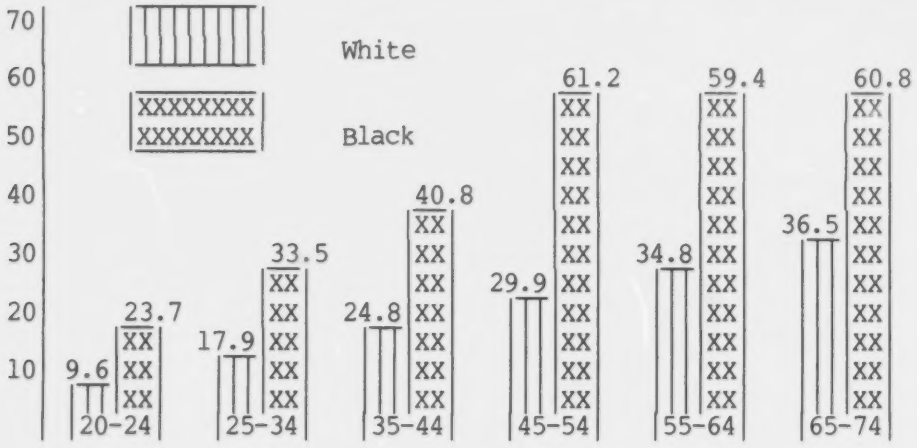


Figure 3

PERCENT OF OLDER WOMEN NEEDING HELP IN ACTIVITIES OF HOME MANAGEMENT

	Age in years		
	65-75	75-84	85 & older
One or more activities	6.8	16.3	40.2
Shopping	5.1	13.6	35.1
Chores	5.1	1.6	28.2
Meals	2.5	7.1	22.1
Handling Money	1.4	5.4	17.7

Source: National Center for Health Statistics, National Health Interview Survey, 1979-80.

References

(1) Kovar, M.G. Use of Medications and Vitamin or Mineral Supplements by Children and Youths. To be published in Public Health Reports.

(2) U.S. Bureau of the Census, Current Population Reports, P-70-83-4, Economic Characteristics of Households in the United States: Fourth Quarter 1983, U.S. Government Printing Office Washington, D.C., 1985.

Uses and Availability of National Health and Health and Nutrition Examination Survey (NHANES)

Robert S. Murphy, MSPH

The National Health and Nutrition Examination Surveys (NHANES) have been key elements in the national nutrition monitoring system. They have provided information that can best, or only, be provided through physical examination, test and procedures performed on probability samples of the U.S. population. The surveys have been conducted over the past 25 years as shown in Table 1.

Table 1

NCHS HEALTH EXAMINATION SURVEYS

		Age (years)
1959-62	National Health Examination Survey I	18-79
1963-65	NHES II	6-11
1966-70	NHES III	12-17
1971-74	National Health and Nutrition Examination Survey I	1-74
1974-75	NHANES I augmentation	25-74
1976-80	NHANES II	0.5-74
1982-84	Hispanic HANES	0.5-74
1987-90	NHANES III	

The primary objectives of NHANES and HHANES efforts have been to provide information on:

- Prevalence of characteristics or conditions
- Normative, descriptive data
- Monitor health and nutritional status over time
- Identify problems of public health importance
- Identify interrelationships among health and nutritional variables

Some examples are shown in Figures 1-14.

Prevalence of Overweight

Figure 1

MEN AND WOMEN 20% OR MORE ABOVE DESIRABLE WEIGHT

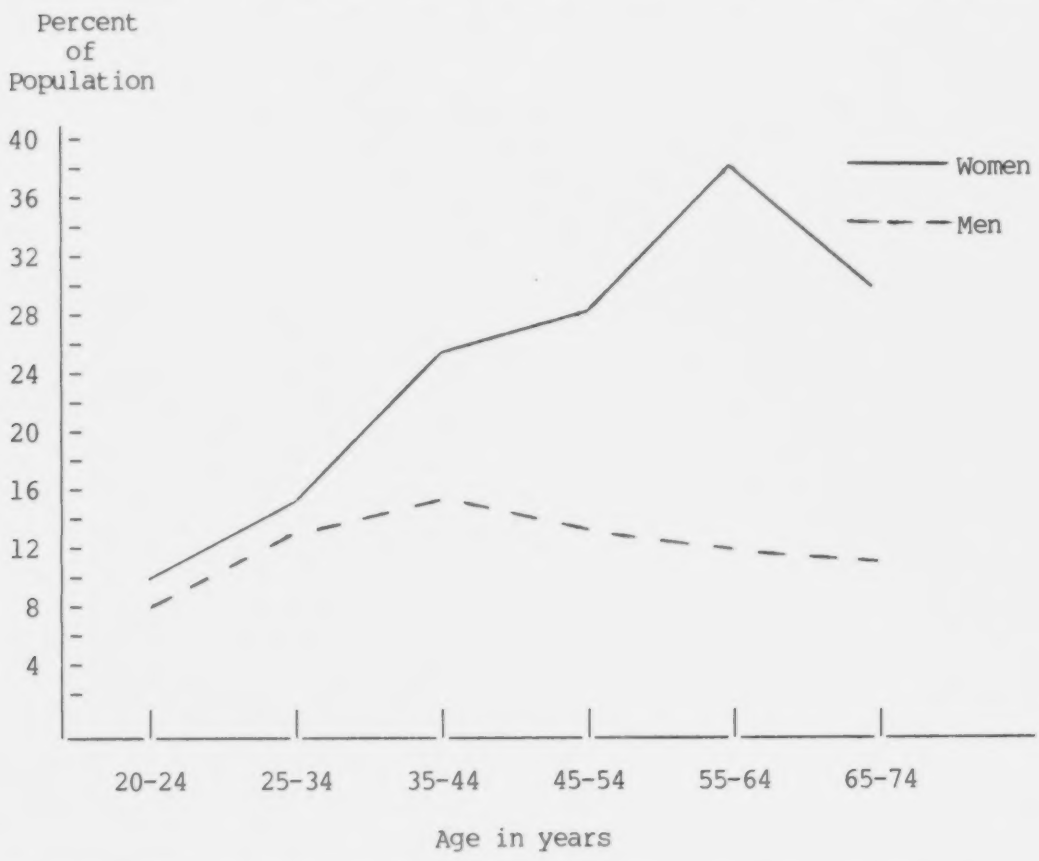
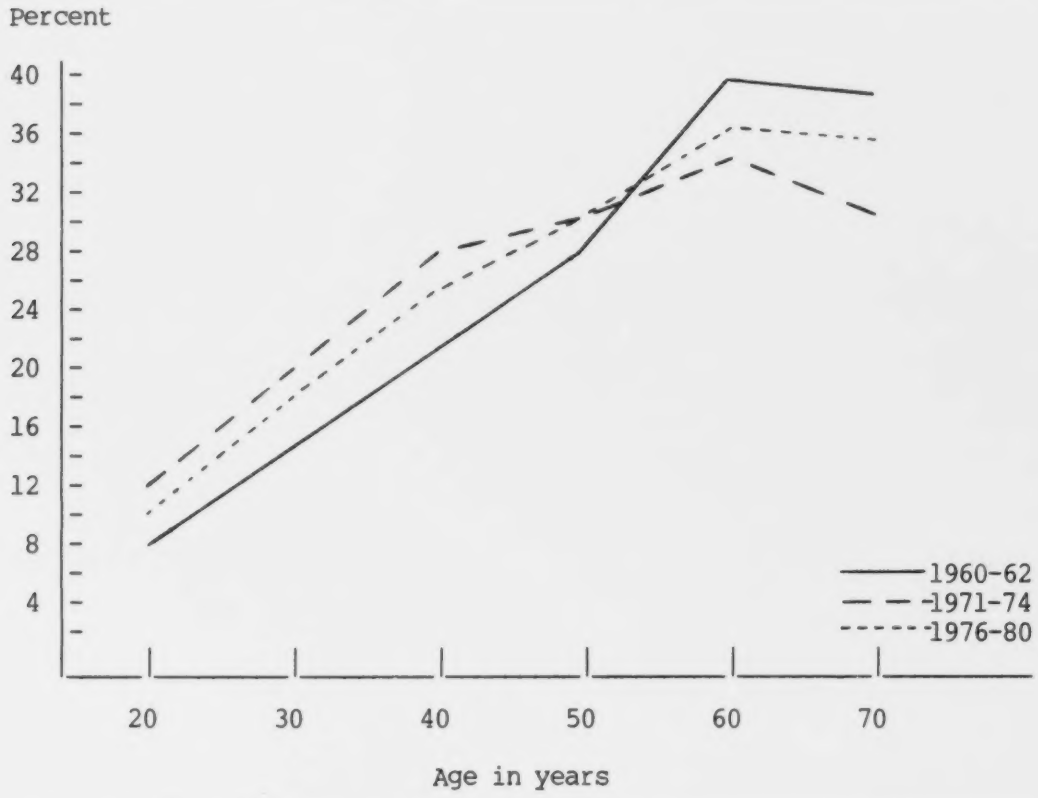


Figure 2

PERCENT OF WOMEN WHO ARE OVERWEIGHT



Source: National Center for Health Statistics, Division of Health Examination Statistics

Prevalence of Iron Impaired Status

Figure 3

CRITERIA FOR ASSESSMENT OF IRON STATUS IN NHANES II

Age (yr)	Serum ferritin (ng/ml)	Transferrin saturation (%)	Erythrocyte protoporphyrin (ug/dl RBC)	MCV (fl)
1-2	----	< 12	> 80	< 73
3-4	< 10	< 14	> 75	< 75
5-10	< 10	< 15	> 70	< 76
11-14	< 10	< 16	> 70	< 78
15-74	< 12	< 16	> 70	< 80

Figure 4

IRON STATUS INDICATORS USED IN THE MCV MODEL

* Mean corpuscular volume (MCV)
* Erythrocyte protoporphyrin
* Transferrin saturation

Reference: Assessment of the Iron Nutritional Status of the U.S. Population Based on Data Collected in the Second National Health and Nutrition Examination Survey, 1976-80. Report prepared by the Life Science Research Office, Federation of American Societies for Experimental Biology, August 1984.

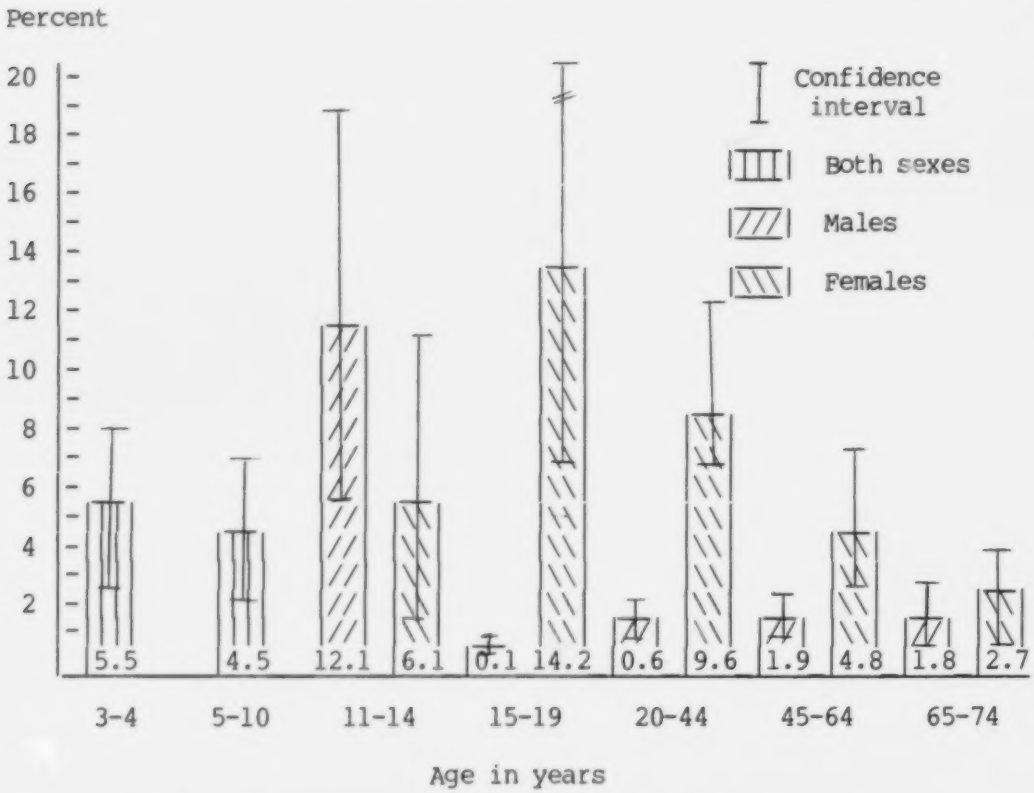
Figure 5

IRON STATUS INDICATORS USED IN THE FERRITIN MODEL

* Serum ferritin
* Erythrocyte protoporphyrin
* Transferrin saturation

Figure 6

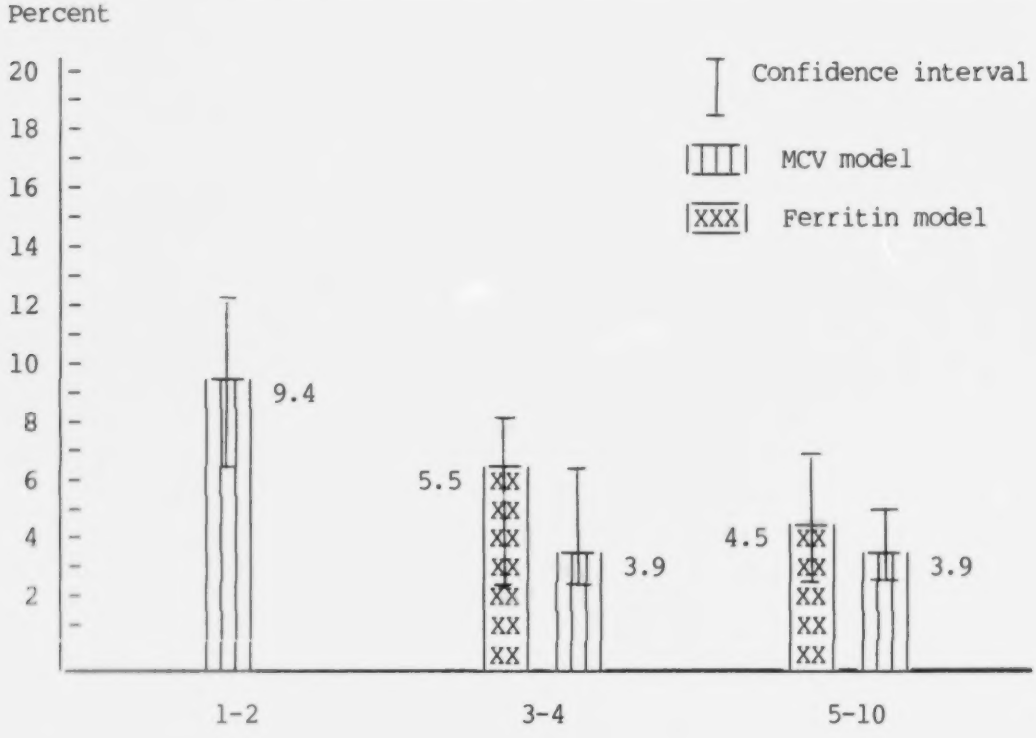
PERCENT OF PERSONS WITH TWO OR THREE ABNORMAL VALUES FOR IRON STATUS INDICATORS USING THE FERRITIN MODEL



Source: National Center for Health Statistics, second National Health and Nutrition Examination Survey

Figure 7

PREVALENCE OF IMPAIRED IRON STATUS FOR CHILDREN
1-10 YEARS BY MODEL



Source: National Center for Health Statistics, second National Health and Nutrition Examination Survey

Figure 8

CONCLUSIONS

* NHANES II provides useful national baseline data on iron nutritional status.

* Prevalence estimates of impaired iron status were between 1 and 6 percent.

  Exceptions: Children 1-2 years (9%)
  Males 11-14 years (4-12%)
  Females 15-44 years (5-14%)

* Prevalence of iron overload was similar to earlier estimates.

Prevalence of Hypertension

Figure 9

DEFINITIONS

Elevated blood pressure is defined as systolic blood pressure of at least 160mm Hg, or diastolic blood pressure of at least 95mm Hg, or both.

Elevated serum cholesterol is defined as a cholesterol value of at least 260mg/dl.

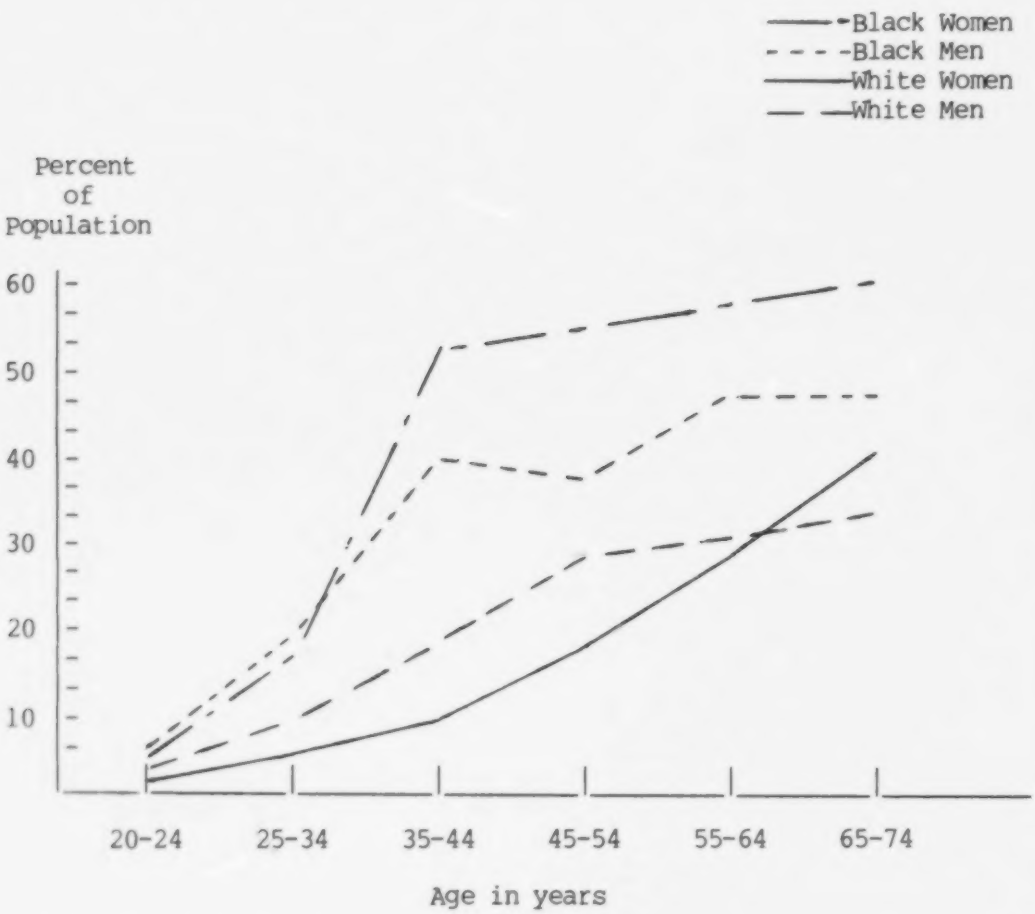
A cigarette smoker is defined as a person who has smoked at least 100 cigarettes and is currently a smoker. In addition to smoking status, the average number of cigarettes smoked per day was recorded. A heavy smoker is defined as a person who smokes an average of at least 25 cigarettes per day.

Source of definition: Coronary heart disease risk factor trends in blacks between the First and Second National Health and Nutrition Examination Surveys, U.S., 1971-80, American Heart Journal, Volume 108, Number 3, Part 2, September 1984.

Figure 10

HYPERTENSION*

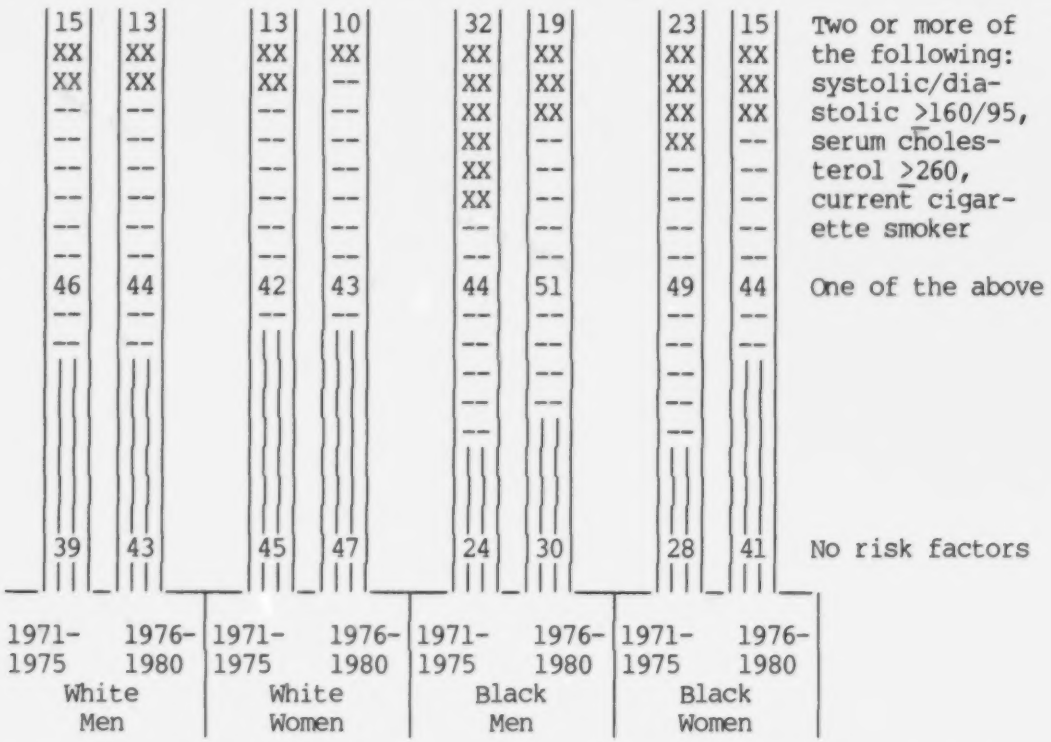
Prevalence among men and women



* Not controlled by diet or medication.

Figure 11

CHD RISK FACTORS



Source: National Center for Health Statistics National Health and Nutrition Examination Survey

Figure 12

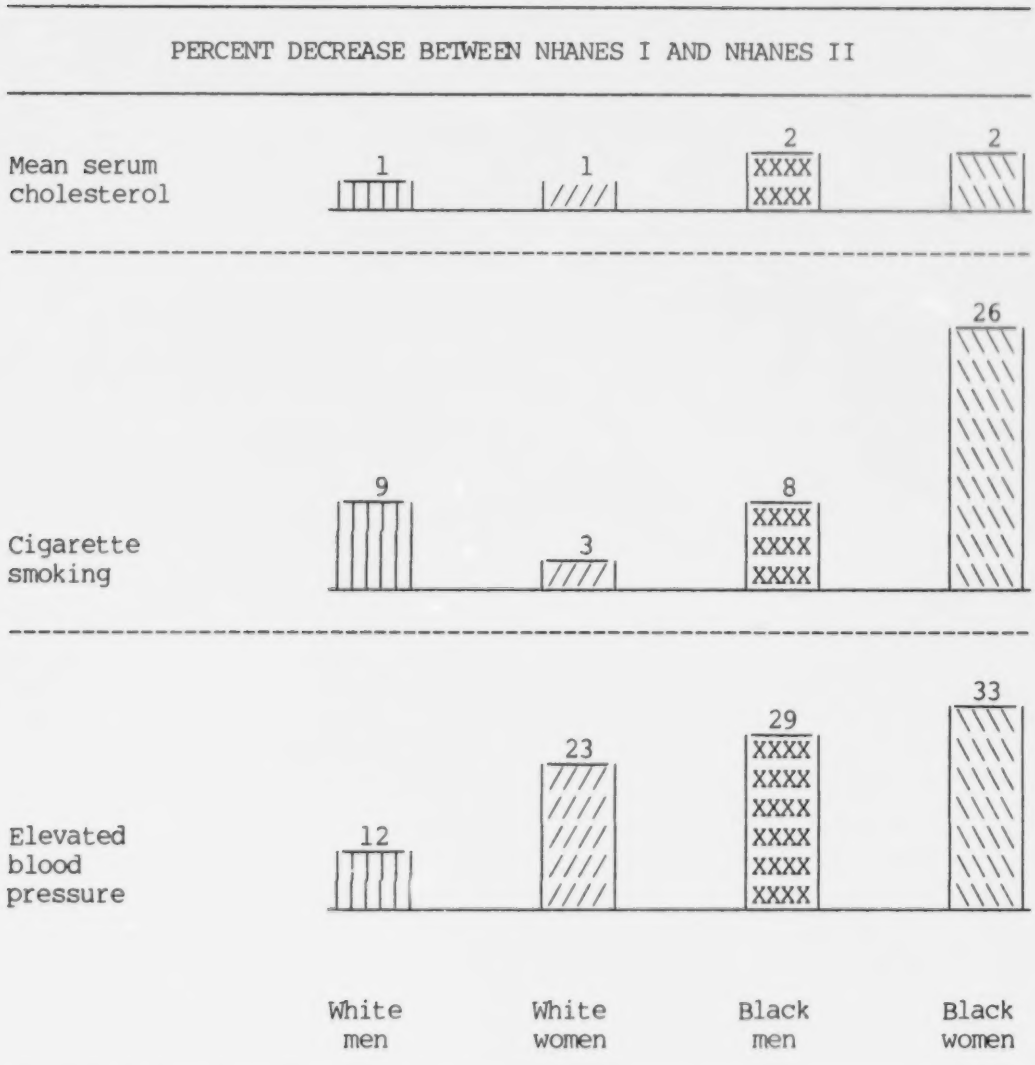


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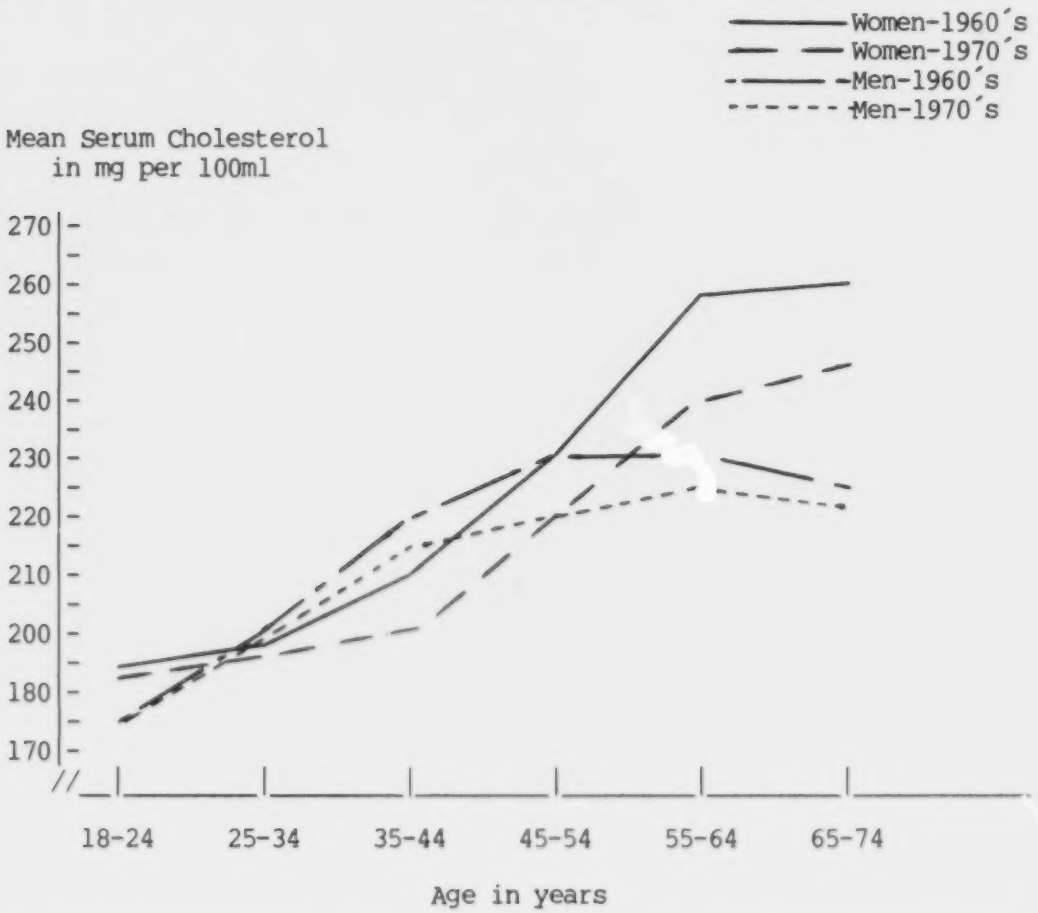
Figure 13

COMPARATIVE SERUM CHOLESTEROL LEVELS FOR MEN AND WOMEN BETWEEN 1960'S AND 1970'S



Source: NHES I and NHANES I conducted by the National Center for Health Statistics.

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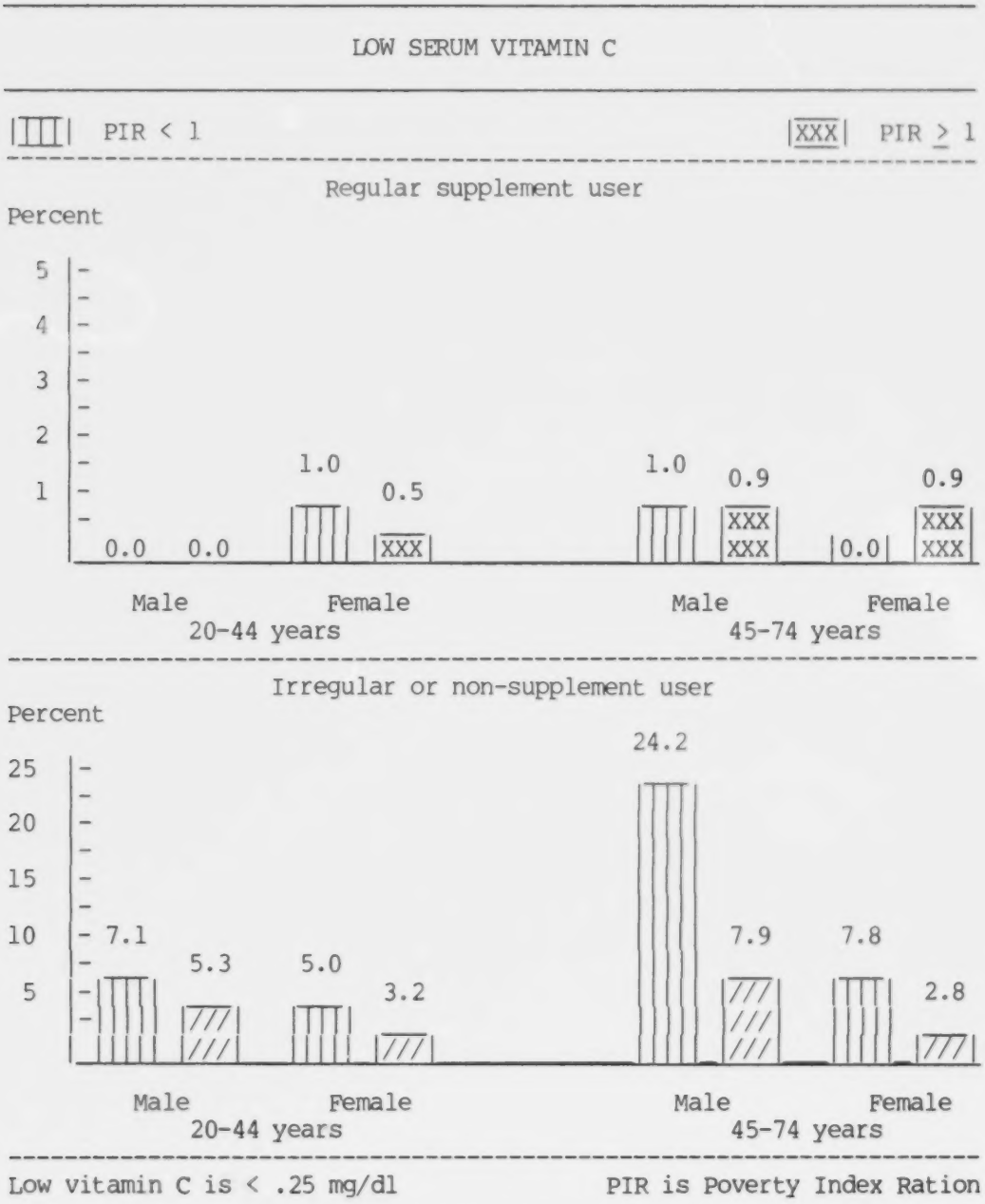
Figure 14

LOW SERUM VITAMIN C



Low vitamin C is < .25 mg/dl

PIR is Poverty Index Ration

Source: National Health and Nutrition Examination Survey (unpublished data).

Uses have been made for inputs to food fortification policy, regulatory policy with respect to lead in gasoline and in development of the air quality criteria document draft, allocation of research funds, measurement of baseline information for disease prevention and health promotion goals, and applications in medical practice. Another application of NHANES and National Food Consumption Survey (NFCS) data is in the market basket survey conducted by the Food and Drug Administration. This survey uses the NHANES and NFCS to develop food lists and diets of selected population age-sex groups (6-11 mos., 2, 14-16 M/F, 25-30 M/F, 60-65 M/F) and to estimate their intakes; foods identified are collected and sent to the TDL where they are prepared in table-ready form. The current program collects 234 foods four times per year and analyzes these foods for over 120 contaminants (pesticides, industrial chemicals, heavy metals, and radionuclides) and 11 essential elements. The individual foods are analyzed.

The purposes of the Total Diet Study (TDS) are:

- Assist in determining the sources of contaminants/nutrients
- Guide FDA programs by identifying problem areas/analytes
- Alert FDA about a potential need for action
- Monitor the effects and effectiveness of initiatives

The nutrient element data are provided to the USDA National Nutrient Data Bank yearly.

The NHANES nutritional status or related health status data include:

- Medical history information
- Physical measures
- Biochemical assessments
- Physicians examination items
- Dietary interview (Food frequency & 24-hr recall)

The data from all surveys are made available in a variety of forms:

- Data tapes (over 1200)
- Publications (Vital & Health Statistic Series)
  (Findings-NHES I-38, NHES II & III-67, NHANES I & II-33)(138)
  (Methods - 21)
  (Program Description - 7)

Topics covered in these reports include: blood pressure levels, prevalence of hypertension, cholesterol levels, height and weight for adults, caloric and selected nutrient intakes, food consumption profiles, dental examination findings, dietary intake and cardiovascular risk factors, diet and iron status, obese and overweight adults, dietary source data, hematological and nutritional reference data, and blood lead levels. In almost all of the reports, the important factors are age, sex, race, and income as shown in the examples.

Professional Journals

Since releasing data tapes and emphasizing the production of more journal articles as a means to better inform the professional users of NHANES data, many articles using the data in major ways have been published; some by NCHS staff and many by researchers at universities and private institutions. This, however, does make it difficult to find and review all of the results from the study, as a sampling of publications in the past several years reveals:

Journal of Pediatrics, Developmental changes in Erythrocyte Protoporphyrin: The Roles of Iron Deficiency and Lead Toxicity.

Journal of Public Health, Prevalences of Anemia and Iron Deficiency Anemia in Black and White Women in the U.S. by Two Methods.

Annals of Internal Medicine (Part 2), Assessment of Nutritional Correlates of Blood Pressure.

New England Journal of Medicine, Coffee Studies (letter to the Editor).

Journal of the Am. Diet. Assoc., Revision of the Total Diet Study Food List and Diets.

American Journal of Clinical Nut., Prevalence and Causes of Anemia in the U.S., 1976-80.

Science, Blood Pressure and Nutrient Intake in the U.S.

American Journal of Epid., Blood Pressure and Nutrition in Adults.

Journal of the American Dental Assoc., The Cariogenicity of Soft Drinks in the United States.

American Heart Journal, Coronary Heart Disease Risk Factor Trends in Blacks Between NHANES I & II.

American Journal of Epidemiology, The Relationship Between Blood Lead Levels and Blood Pressure and its Cardiovascular Risk Implications. A similar topic was in JAMA.

Special Publications

Several Publications are of particular importance to consumers of NHANES nutrition data. In terms of findings, the FDA has contracted with the FASEB for the past two years to do selected studies of zinc, iron, and folate nutritional status of the U.S. population based on the NHANES II data base. These reports have been published by FASEB. Currently, an expert working group formed by FASEB is addressing the vitamin A information available from all the HANES surveys including HHANES. A report should be available by the end of the year.

The Food and Nutrition Board's report on National Survey Data on Food Consumption: Uses and Recommendations is also important reading. Among the recommendations by the committee are:

- Two separate surveys should continue
- Both should collect dietary intake data, but with an identical methodological core
- Have compatible sampling and common population descriptors
- Be designed to be continuous survey processes with continuous data reporting
- NFCS should continue to collect replicate data
- There should be a continuous evaluation process to update methods and survey designs.

As we begin planning for NHANES III, all but the continuous field work is being recommended and pursued by the NCHS technical staff. We are meeting on a regular basis with staff of HNIS to coordinate the planned 1988 NHANES III study with both the monitoring survey and the 1987 NFCS proposed by NHIS. NCHS is proposing a 6 year study with each two year period a national probability sample. After two years, we would be able to make estimates for the total and white populations; after 4, total, white and black populations; and after 6 years, the total white, black, and hispanic populations. Making these estimates assumes oversampling to double the hispanic and black populations selected into the study and increasing the sample size more than double.

In the next year, we will be soliciting content input at the broad level. The following year will be spent developing specific methodologies and procedures for the broad areas and developing automated systems to record and edit the data collected as close to the point of collection as possible to speed up the analysis and release of the data. The following year will be spent pilot testing the study protocals to assure scientific acceptability and the acceptability of the study components to the respondents. We plan to start in July 1988.

I would like to say a few words about the status of the HHANES survey. The field work for the Mexican - American portion of the study was completed in February 1984. This fall we will be presenting two APHA sessions releasing the first analysis of the results and about the same time releasing the first public use data tapes. The adult session will cover CVD risk factors in adults and some health services information related to health care needs. The child and women's health session will cover anemia, lead levels, hearing, vision, immunization levels, and women's reproductive health with some attention to health care needs. The data tapes released will be related to these data sets. From December 1985 to December 1986 and perhaps longer, about half of my staff will be involved in developing the remaining data users tapes and planning publications of the data from the Puerto Rican and Cuban - American portions of the study. We are planning on having an analytic contract to supplement our data analysis efforts. We also intend to identify hispanic researchers to

work with our internal staff to ensure that data analyses are sensitive to crosscultural issues and to supplement our skills in the health services utilization and needs areas.

USDA's National Nutrient Data and Nationwide Food Consumption Surveys

Betty B. Peterkin, BS

The National Nutrient Data Bank (NNDB) and the Nationwide Food Consumption Surveys (NFCS) affect public health through their use in Federal programs of agriculture, food assistance, enrichment and fortification, food labeling and education. This paper summarizes the types of data available from NNB and NFCS and their uses.

USDA's Human Nutrition Information Service administers the NNDB, NNDB, and the NFGS (1). NNDB is the country's primary resource of information on the nutrient content of foods. The surveys are used to monitor the food and nutrient consumption of the population. Diets reported in the surveys are appraised for their nutritional quality and other characteristics. The results are used to help develop dietary guidance to the public.

Information on the nutrient content of foods comes from laboratories in private industry, in government (including the Food and Drug Administration, the Agricultural Research Service, and studies that the Human Nutrition Information Service sponsors), in universities, and in the scientific literature. HNIS staff reviews the information for technical adequacy before entering it into the NNDB. At present over 800,000 individual records are stored in the bank and additions are made at the rate of 6,000 to 9,000 per month. This information is summarized to develop representative values for 40-50 nutrients in each of thousands of foods. The aim is to provide data that are representative of foods across the nation on a year-round basis.

These representative values are available in Agricultural Handbook No. 8 (AH-8), which is being revised in sections by food group (2). Twelve of the 23 sections are published and available through the Government Printing Office. Others are in process.

The food composition data are also available in machine readable form. These data sets are described, along with data tapes of results from NFCS 1977-78, in an HNIS report (3). Instructions for ordering tapes from the National Technical Information Service in the Department of Commerce are also included.

The USDA Nutrient Data Base for Standard Reference is HNIS's most complete and most up-to-date food composition data base. It incorporates the changes made in the revised sections of AH-8. This tape shows imputed values (best guess) where values are not available from analytical data for publication in AH-8 and its revised sections. It reflects current standards of identity such as higher iron levels for

enriched flour and bread which became mandatory after July 1, 1983.

There are many out of date and incomplete data tapes being used. To help in selection of a tape, Betty Perloff of HNIS and Dr. Loretta Hoover of the University of Missouri have authored "Model for Review of Nutrient Data Base System Capacities"(4). In cooperation with Dr. Grace Petot of the Ohio State University, HNIS is developing guidelines for proper use of nutrient data in computerized systems.

Less technical publications than AH-8, such as "Sodium Content of Your Foods"(5), "Calories and Weight"(6), and "Nutritive Value of Foods" (7) will be published later this year. All values will be updated and values for cholesterol and sodium will be added.

A data tape that is extremely useful for diet assessment is the one HNIS used for calculating the nutritive value of food intakes as reported in national surveys (3). The one now available was used in 1977-78. The tape contains over 4,000 foods reported as eaten by Americans in 1977-78, including commonly used ethnic foods, especially Puerto Rican, Hawaiian and Mexican foods. Food components covered are food energy, the macro-nutrients, protein, fat, and carbohydrate; four minerals; and seven vitamins.

HNIS is updating and extending the data tape to include sodium, potassium, zinc, copper; folacin; cholesterol; saturated, monosaturated, and polyunsaturated fatty acids, and vitamin A in retinol equivalents. This tape will be used in our Continuing Survey and will be updated for future NHANES and NFCS.

Carotene as retinol equivalents, alpha-tocopherol equivalents, dietary fiber, and alcohol will also be included in the tape. Values on these tapes are not equally reliable. Each value is coded to indicate its source -- revised AH-8, new analytical values not yet published, older editions of AH-8 or imputed from values for similar foods. On the new tape 97 percent of calcium values are based on analyses, 78 percent of values for magnesium, 59 percent of carotene and 29 percent of dietary fiber.

The historic role of USDA as primary provider of food composition data is understandable. These data are vital to USDA's mission first to assure a sufficient, wholesome, and nutritious supply of food and second to provide information to help Americans select good diets (1).

These data are used in USDA research on human nutrition requirements, regulatory activities for meat and poultry products, the development of standards for food assistance programs, for monitoring the nutritional adequacy of U.S. food supplies and diets of Americans, and for developing nutrition education materials. Other Federal agencies especially DHHS's National Center for Health Statistics, National Institutes of Health, and Food and Drug Administration, also use the data.

For the past nine years nutrient data users have held conferences to focus on the development and use of data. The purpose of these

conferences is to improve user understanding of the strengths and weaknesses of the data and help USDA and other data providers to be responsive to priority needs of users.

Now for nutrition monitoring. HNIS monitors nutrient consumption of the population at three levels: food in the U.S. food supply; food brought into the household and used there and food eaten at home and away by individual household members.

The food supply data, for each year since 1909, show amounts of nutrients available per capita and the food sources of nutrients (8). For example, considerable increase has occurred in the amount of dietary fat in the food supply since 1909 -- from 124 g to 166 g per capita per day. It also shows that the increase has come primarily from fats and oils.

As the percentage of calories from fat has increased over the years (from 32 percent in 1910 to 43 percent in the 1970's and 1980's) the percentage from carbohydrate has declined (from 57 percent to 45 percent). The decrease is in starch (39 percent to 22 percent of calories). The calories from added sweeteners, has stayed at about 16 to 17 percent since 1950; while sucrose use has declined in recent years, the use of cornbased sweeteners -- much of it going into soft drinks -- has increased.

The food supply provides most nutrients in generous amounts. There are two notable exceptions -- zinc and folacin. The food supply -- 3500 calories worth of food -- has provided 11 to 13 mg of zinc per capita per day since 1909. This is less than the RDA for zinc of 15 mg for people over 10 years.

About every 10 years USDA collects information on household food use and individual food intakes in Nationwide Food Consumption Surveys. The most recent survey was conducted in 1977-78. From a stratified probability sample of households in the 48 States, about 15,000 households and 38,000 individuals in those households were surveyed (9).

The survey showed the kinds and amounts of foods households used and the cost of each food for a week's period. It showed the food and nutrient intake of individual household members for three days. The survey also got information on eating practices -- when, where, and with whom people ate -- and on household characteristics, such as income and food program participation. All of these data and nutrient content of each food reported are available on tape from the National Technical Information Service (3).

Many intakes of the 38,000 individuals did not meet the RDA over three days (10). Only 12 percent of intakes did not meet the RDA for protein. For vitamin A, iron, calcium, magnesium, and vitamin B6, 50 percent or more fell short of RDA levels. Although zinc and folacin levels were not calculated for individuals, household averages indicate that large percentages of the population would fall below RDA for

these nutrients, too.

To interpret these numbers, it is necessary to understand that individual requirements for nutrients vary and the RDA are set high intentionally to cover the needs of essentially all healthy people (11). That is, an intake above the RDA means the person's requirement is almost certainly met. But failing to meet the RDA does not mean the person is malnourished. It is useful to look at distribution of intakes over a few days because, as the Food and Nutrition Board (FNB) states, "When the proportion of individuals with low intakes is extensive, the risk of deficiency in the population is increased." There is no special significance to meeting a certain percentage, such as 70 percent of the RDA; and percentages of individuals achieving several different cut-offs are shown in HNIS publications. A FNB Committee, under a grant from HNIS, is attempting to identify the risks associated with nutrient levels below the RDA for us to use in interpreting results from our surveys. Their report is due later this year.

Fat intakes over three days from the 1977-78 survey were high relative to levels of 30 and 35 percent recommended by some authoritative groups (10). For example, only 13 percent of the males 35-50 years and 17 percent of females had fat intakes that provided less than 35 percent of calories. Over one-third had fat intakes at 45 percent of calories or more. Mean fat levels reported in NHANES II were slightly lower, partly because of differences in number of days, intakes collected, inclusion of weekend days in NFCS and not in NHANES, and less probing for amounts of fat on meat and vegetables, etc., in NFCS. However, in both surveys mean fat levels were well above 35 percent of calories.

NFCS households can be sorted by certain characteristics -- such as whether or not they were in the Food Stamp Program at the time of the survey. Then, the nutrient levels of household diets in terms of the food used can be compared. Of those households in the Food Stamp Program, 48 percent reported food use that provided recommended levels of all 11 nutrients studied, compared with 38 percent of households, eligible for, but not in the program (12). However, these groups of households may be different in other ways -- number of people, economic level, and so on. When such characteristics are controlled statistically, the Food Stamp households had 12 to 14 percent more of nutrients available for use in households and 15 to 18 percent higher nutrient intakes than eligible non-participating households (13).

The NFCS activities are specified in a plan for the National Nutrition Monitoring system sent to Congress by USDA and DHHS in 1981 (14). The core surveys of the System are the Nationwide Food Consumption Surveys and DHHS' National Health and Nutrition Examination Survey, which looks primarily at physiological measures of nutritional status. The plan specified monitoring activities through 1987. Most have been accomplished or are underway.

A Joint Nutrition Monitoring Evaluation Committee of outside experts, called for in the plan, is using data from these two surveys

to prepare a report on the nutrition of the population for Congress and on recommendations for the monitoring system. USDA and DHHS will use this report, and the report published last year by the Food and Nutrition Board on uses of food consumption data (15), as well as our experiences since 1981, to extend the plan for the monitoring system beyond 1987.

The two surveys tell much about diets and the state of nutritional health of the population. But the monitoring system has been faulted by the Congress and by the President's Task Force on Food Assistance, as being inadequate for providing needed information in a timely manner.

A new type survey, the Continuing Survey of Food Intakes by Individuals (CSFII) was initiated in April 1985 to get more timely information (16). This survey was specified as part of the monitoring plan of 1981. It will provide continuous data on the dietary adequacy of a core monitoring group in the general population and of survey groups at nutritional risk. It will provide up-to-date information on food consumption practices.

Women and 1 to 5 year old children are the core monitoring group. A representative sample at all incomes and a special sample of low-income households are being surveyed. Data on food intakes for six days spread over each year for each person will be collected. Special samples of men will also be studied this year.

As in earlier surveys of food intakes, the continuous survey finds out what food was eaten, how much, where the food came from, and the eating occasion. Also questions are asked about special diets, vitamin supplements, general health status, and height and weight. The women are asked about the use of fat and salt in preparing food. This additional probing on fat helps make NFCS data on fat more comparable with data from NHANES. Women are asked to select which of the following best describes the household's food over the past 2 months: enough of the kinds we want; enough, but not always the kinds we want; sometimes not enough; often not enough.

The data collection for the first wave of the continuing survey -- the first of the six days -- will be completed in June. An abstract to present results from the first wave compared with comparable intakes by women in spring 1977 has been submitted for presentation at the APHA meeting in November 1985. A published report will be ready by that time also. All data collected and the nutrient contribution of each food reported as eaten will be available on tape.

USDA has requested an 80 percent increase in the HNIS budget in Fiscal Year 1986 for data collection for the decennial NFCS 1987, similar to the 1977-78 survey. NHANES III will not be started until 1988. USDA and DHHS had hoped for startup of both surveys in 1987 when the monitoring plan was developed in 1981; however, timing and availability of resources has made this impossible. With improved comparability of the dietary data from the two surveys and the initiation in

1985 of our Continuing survey, this staggered timing of NHANES and NFCS is expected to be beneficial in some respects.

Results from these surveys are used for many purposes: to monitor dietary status, to measure the economics of food consumption, to show effects of certain food assistance and regulatory programs, and to provide the basis for guidance to the public about food selection.

These data have implications for public health and for the dietary guidance to the public. Many intakes, especially those of women, do not meet RDA for calcium, iron, magnesium, zinc, and folacin. Some are short in vitamins A and C. Many appear low in fiber and exceed moderate levels of fat, cholesterol, sodium, and added caloric sweeteners. Yet, the overall health of the population is relatively good.

What should the women of America be told to eat when our surveys (with all of their weaknesses) show that so many of their diets deviate from standards? Of women 35 to 50 years only 16 and 5 percent had intakes over 3 days that met their RDA for calcium and iron respectively (10). Few of them reported intakes of fat as low as suggested by some authoritative groups. The better sources of calcium and iron (milk and meat) also contain fat. These three food components -- calcium, iron, and fat -- illustrate the situation, but many more components must be considered in dietary guidance development. For some, such as dietary fiber, sodium, and sugars, our understanding of content in foods and diets is far from complete.

The Dietary Guidelines for Americans are the basis for dietary guidance policy for healthy people, both in USDA and DHHS (17). These guidelines are directional, not quantitative. In attempting to help people put the guidelines into practice through sample food plans and meals that are acceptable, the problems of meeting quantitative standards for all food components become apparent.

The USDA family food plans at four cost levels are one example of this type activity. The thrifty food plan is the legal standard for setting benefits for families with no income in the Food Stamp Program (18). These food plans suggest quantities of all foods needed (in foods as purchased) for nutritious diets for men, women and children. In 1983, to revise these food plans, a mathematical model was used to help change food consumption patterns, from the survey, only as necessary to meet nutritional criteria for the food plans at specified costs. RDA were used as standards for all nutrients for which food composition data were sufficient. Also, moderate levels of fat, cholesterol, sodium, and added sweeteners were required in the food plans.

"Better Eating for Better Health" completed last year, has been a 4-year joint undertaking by HNIS and the American Red Cross (19). This 12-hour, 6-session course addresses such topics as basic nutrition, diet and disease, food labels. The course is being offered in 3,000 Red Cross Chapters across the country.

The Dietary Guidelines have recently been reviewed by an Advisory Committee (20). Their recommendations are under consideration by the two Departments, and the Bulletin presenting the new edition of the guidelines will be published late this year. It appears that the guidelines will not be changed substantially. HNIS, in cooperation with the Extension Service, is preparing a series of mini-bulletins on how to put the guidelines into practice.

In summary, HNIS research includes the nutrient content of foods, nutrition monitoring, diet appraisal and dietary guidance. Much of this research is useful to the States. However, our national surveys do not provide data on a State by State basis. There are two major reasons: 1) the cost would be about 15 times greater and 2) it is by no means clear that State data needs would be met effectively by a single national survey. Consider, if NFCS and NHANES results were applicable to your State, would your monitoring needs be met? Probably not. Each State has its own set of objectives to be met by such surveys. And all surveys at the Federal and State levels are limited by the methodologies and standards currently available to us. HNIS staff will discuss survey methods and data bases with States who want to conduct studies.

The survey data tapes are large and complex. They are difficult to use and easy to misuse. Their use requires large computers and experienced programmers. As the data from the Continuing Survey and NFCS 87 become available, HNIS intends to sponsor a few two-to-three day workshops in different parts of the country. The purpose would be to familiarize users with the surveys, questionnaires and designs, the data tapes, survey samples, use of weights, and analytical procedures.

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Association of State and Territorial Health Officials

Foundation Reporting System

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Many of you have probably known the ASTHO Foundation's Reporting System as the National Public Health Program Reporting System of NPHPRS. The reporting system, in existence since 1970 was developed to respond to Congress' request for information about uses of the old 314(d) block grant funds. It has always been a "state" reporting system, although in the past, many of the data elements were federal requirements. About the time that the new health block grant legislation was enacted, ASTHO's Reporting System became the central part of the new ASTHO Foundation. With the block grants and the new Foundation came more "freedom" for the Reporting System. Freedom in that it was now free of federal requirements for data and OMB restrictions. It became truly a state system and also free to find some other sources of funds for data collection efforts.

The Foundation's Reporting System collects information needed at the national level. It is not designed to be the management tool used by program directors. It is designed to build upon data already collected at the program level. Figure 1 shows what we call the building blocks, pyramid, or filtering approach we take to data collection. While large amounts of information are needed at the program level, not all information need filter up to the State Health Agency level, and certainly not all should be sent to the national data systems. On the other hand, data gathered at the national level should be integrated with existing systems, a summary of data used by the program manager. Further, data collected by the Foundation's Reporting System should not duplicate information collected elsewhere.

I would like to tell you briefly about how we go about selecting data elements, and our Forms Revision Process (Figure 2). Its purpose is to ensure that the things just mentioned are actually done. Data elements are designed with the assistance of work groups composed of both the users and the suppliers of the data, program directors, federal advisors, and educators; a task group of management types; and finally ASTHO's Data Policy Review Panel. We attempt not to duplicate other efforts.

Figure 1

PUBLIC HEALTH DATA

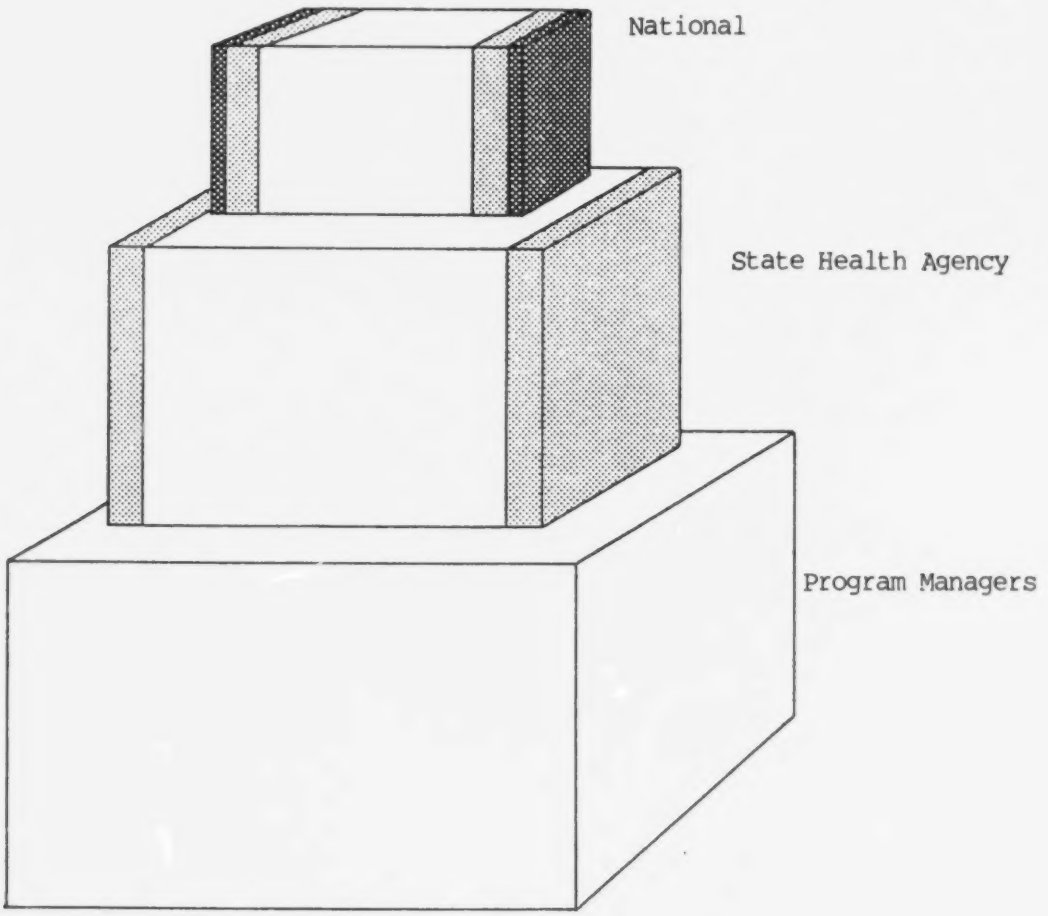
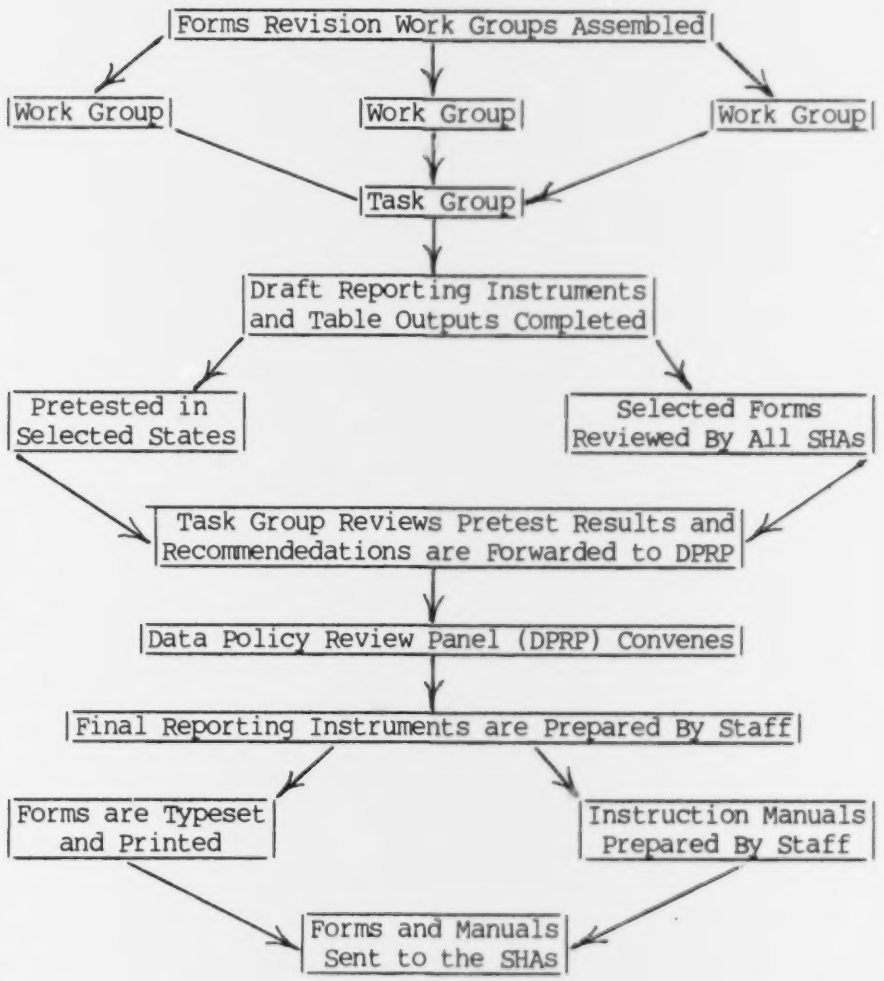


Figure 2

FORMS REVISION PROCESS


Forms Revision Work Groups Assembled
Work Group
Work Group
Work Group
Task Group
Draft Reporting Instruments and Table Outputs Completed
Pretested in Selected States
Selected Forms Reviewed By All SHAs
Task Group Reviews Pretest Results and Recommendedations are Forwarded to DPRP
Data Policy Review Panel (DPRP) Convenes
Final Reporting Instruments are Prepared By Staff
Forms are Typeset and Printed
Instruction Manuals Prepared By Staff
Forms and Manuals Sent to the SHAs

To help ensure this, we employ the "discipline" (Figure 3). We've found that data elements are much more meaningful if they are designed after their purpose is determined. Hence, we first make a list of questions to be answered by the data; next, mock data displays are drafted; and last, data elements are designed. We call this the "discipline" because that's what it takes to design meaningful data elements that gather information that is needed and useful rather than everything you ever wanted to know!

Figure 3

"DISCIPLINE" FOR MODIFICATIONS TO ASTHO FOUNDATION DATA SET

1. List of questions to be answered by proposed modification
2. Mock data displays that would answer those questions
3. List of data elements needed to complete mock tables

Several years ago, members of the Association of State and Territorial Public Health Nutrition Directors approached us about working together to collect information on nutrition activities of the health departments. Since that time we have worked with them to develop some minimum, common data elements that could be collected through ASTHO's Reporting System. This is not an easy task. As in all other areas, everyone wants data and almost everyone has a slightly different idea of what data should be collected. As we have worked with you we have also been made aware of the need to include your representatives on other forms revision work groups, such as MCH. Your group has had input to our MCH and general personal health forms and this assistance has been very helpful as we have struggled with data questions related to nutrition.

Although we are still in the early stages of developing some type of national state/local health agency nutrition data set, some work has been done. A list of the nutrition-related data elements in the current reporting instruments is shown in figure 4. One of the reasons the federal government supports some of the Foundation's analytical activities is the need to assess the states' progress towards meeting the 1990 prevention objectives. Data elements have been designed to collect some of this information as it relates directly to nutrition activities.

Figure 4

LIST OF NUTRITION DATA ELEMENTS

1. Number of women eligible and number receiving WIC supplemental food assistance

   A) Of these, the number of pregnant women
   B) Of these, the number of lactating women
   C) of these, the number of post-partum, non-lactating women

2. Total number of children (birth through age 4) eligible and number receiving WIC supplemental food assistance

   A) Number of infants (birth through 364 days)
   B) Number of children (ages 1 through 4)

3. Number of (infants, children 1-4, 5-13, 14-19) receiving nutritional assessments

   A) Of those, number with identified/suspected problem

      1 - Of those, number referred to WIC
      2 - Of those, number receiving any diagnostic and/or treatment services from SHA/LHD or from other provider

4. Number of infants breastfed by mothers receiving WIC supplemental food assistance

   A) Number of infants breastfed at hospital discharge
   B) Number of infants breastfed at 6 months of age

5. Number of women receiving breastfeeding support services within two weeks post hospital discharge

6. Nutrition services

   A) Counseling for specific problems (WIC)
   B) Counseling for specific problems (non-WIC)
   C) Referral to WIC food assistance
   D) Referral to other food assistance
   E) Referral to other services
   F) WIC food assistance
   G) other food assistance

The following are some examples of the data use. These do not display national figures or trends, although they could do this if reporting was more complete.

* Food Supplements -- see Figure 5

  - Display of the number of personal health programs providing WIC services, the number able to supply data, and, of those, the number of persons served.

Figure 5

Prevention/Promotion Measures include:

Food supplements for low income women, infants, and children at risk for nutritional problems.

FOOD ASSISTANCE SERVICES PROVIDED BY PERSONAL HEALTH PROGRAMS OF FIFTY STATE HEALTH AGENCIES: FISCAL YEAR 1983

	Number of programs providing service	Number of programs reporting data	Number of persons served (millions)
WIC food supplements.....	88	64	4.9
Other food assistance.....	27	6	0.1
Referrals to WIC.....	78	37	0.6
Referrals to other sources...	62	20	0.1

Source: ASTHO Personal Health Program Report

* Nutrition counseling -- see Figure 6

  - Display of the types of programs providing nutrition education/ counseling.
  - Could be analyzed in terms of the response to the 1990 objective.

Figure 6

Specific Objectives include:

By 1990, virtually all routine health contacts with health professionals should include some element of nutrition education and nutrition counseling.

Fifty State Health Agencies reported supporting personal health programs which provided WIC and/or non-WIC nutrition counseling in 1983. Of the 89 programs which provided nutrition counseling for WIC, 69 programs were able to report data; they counseled 4.4 million persons. Of the 98 programs which provided non-WIC nutrition counseling, 51 programs reported counseling 0.3 million persons.

Types of SHA-supported personal health programs which provided nutrition education and counseling in 1983 are listed.

* WIC/MCH Nutrition

* General Nutrition

* General Maternal and Child Health

* Family Planning

* Handicapped Children's Services

* Hypertension

* Public Health Nursing

* Dental

* Migrant Health

Source: ASTHO Personal Health Program Report

* Nutritional health assessments -- see Figure 7

- Display the number of state health agencies (SHAs) providing nutritional assessments to various age groups out of the 48 total SHAs that reported in FY 1983 and the number of children they assessed.

Figure 7

NUTRITIONAL HEALTH ASSESSMENTS -- FY 1983

	Number of SHAs Reporting Service	Number of SHAs Providing Data	Number of Children Assessed
Infants.....	41	11	217,107
Ages 1-4.....	41	12	264,430
Ages 5-13.....	38	6	37,868
Ages 14-19....	37	5	7,356
General*.....	24	13	174,038

* Total from age groups not compatible with those specified

Source: ASTHO Report on Public Health Services for Mothers and Children

144

* Breastfeeding -- see Figure 8

- 50% of SHAs surveyed said that they had this information; relatively poor response considering confidence was high that these questions could be answered.

- Is problem due to a lack of communication between nutritionists and MCH directors or between lab and MCH directors?

- Learned yesterday that a lot of data are collected but usually not retrievable or aggregated.

Figure 8

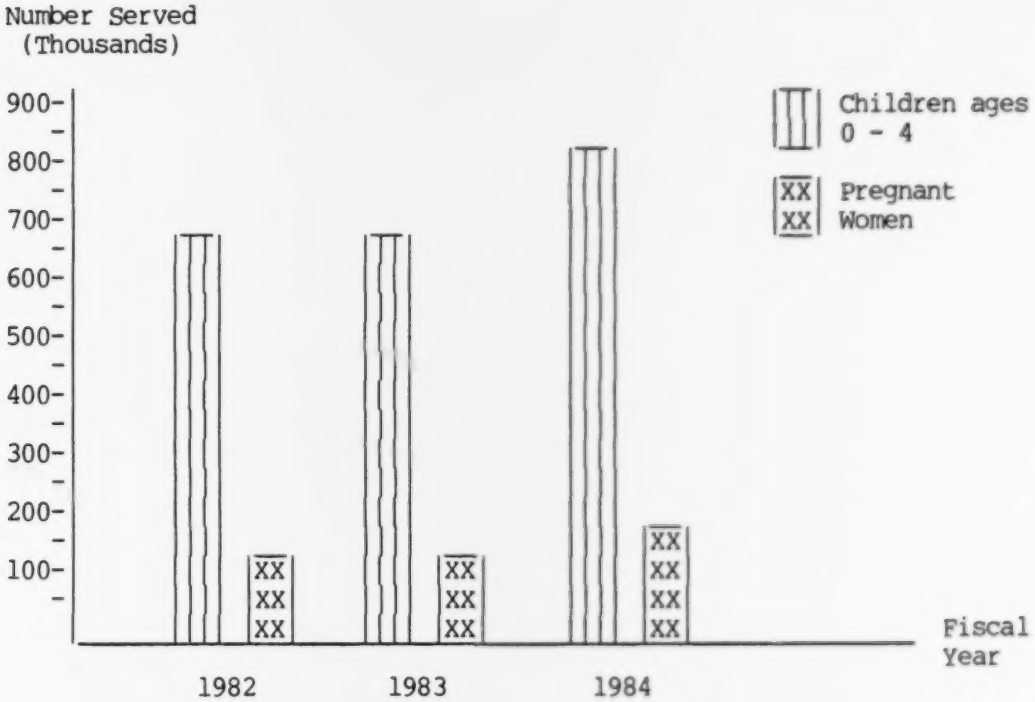
	Number of SHAs Responding	Number of SHAs Reporting Data
	(Fiscal Year 1984)	
Women receiving breastfeeding support services within 2 weeks post-hospital discharge	27	2
Of the infants breastfed by mothers receiving WIC:		
At hospital discharge	26	6
At 6 months of age	28	5
Of the infants screened for PKU, the number whose feeding method was recorded with test sample	19	1
Of those, the number of infants breastfed	17	1

Source: ASTHO Report on Public Health Services for Mothers and Children

* Trends in the number of pregnant women and the number of children (total ages 0 thru 4) receiving WIC services between 1982 and 1984 -- see Figure 9

Figure 9

NUMBER OF CHILDREN AND PREGNANT WOMEN RECEIVING WIC FOOD ASSISTANCE FROM 11 STATE HEALTH AGENCIES: FISCAL YEARS 1982-1984



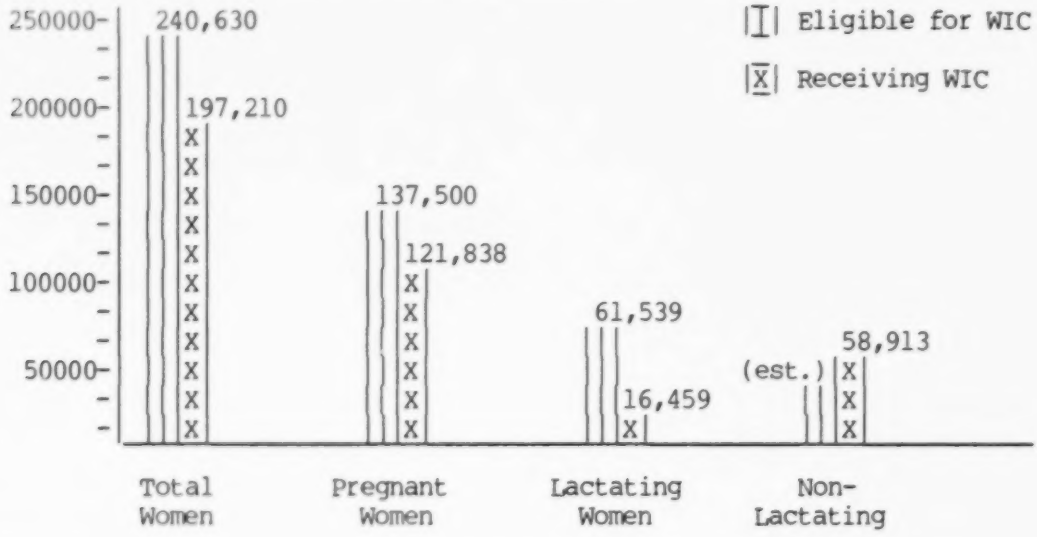
Source: ASTHO Report on Public Health Services for Mothers and Children

* Number of women eligible and number receiving WIC supplemental food -- see Figure 10

- Shows number of pregnant, lactating, & non-lactating women eligible to receive and receiving WIC in FY 1984.
- If data are correct there is a much greater number of non-lactating women receiving WIC than lactating -- perhaps WIC people need to take a look at why and how to promote breast feeding.

Figure 10

WIC ELIGIBILITY (1983) AND WIC SERVICES TO WOMEN PROVIDED BY 10 STATE HEALTH AGENCIES: FISCAL YEAR 1984



S A M P L E

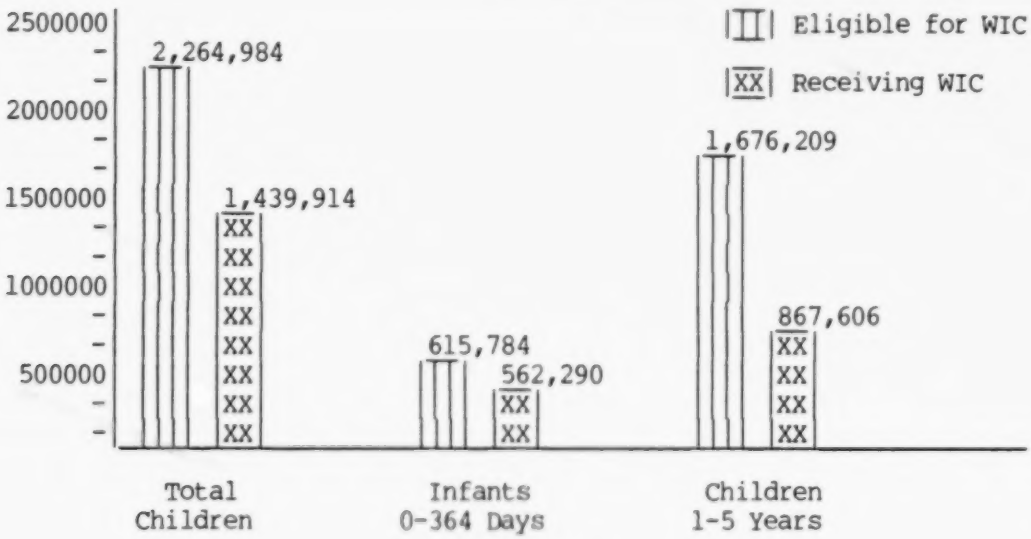
Source: ASTHO Report on Public Health Services for Mothers and Children

* Number of children eligible and number receiving WIC supplemental food -- see Figure 11

  - Age groups (infants and children 1 through 4).
  - Notice the closeness between eligibility and services with the infants -- a larger gap with children. You need this information in order to evaluate your program, but we're not getting it at the national level.

Figure 11

WIC ELIGIBILITY (1983) AND WIC SERVICES TO CHILDREN PROVIDED BY 20 STATE HEALTH AGENCIES: FISCAL YEAR 1984

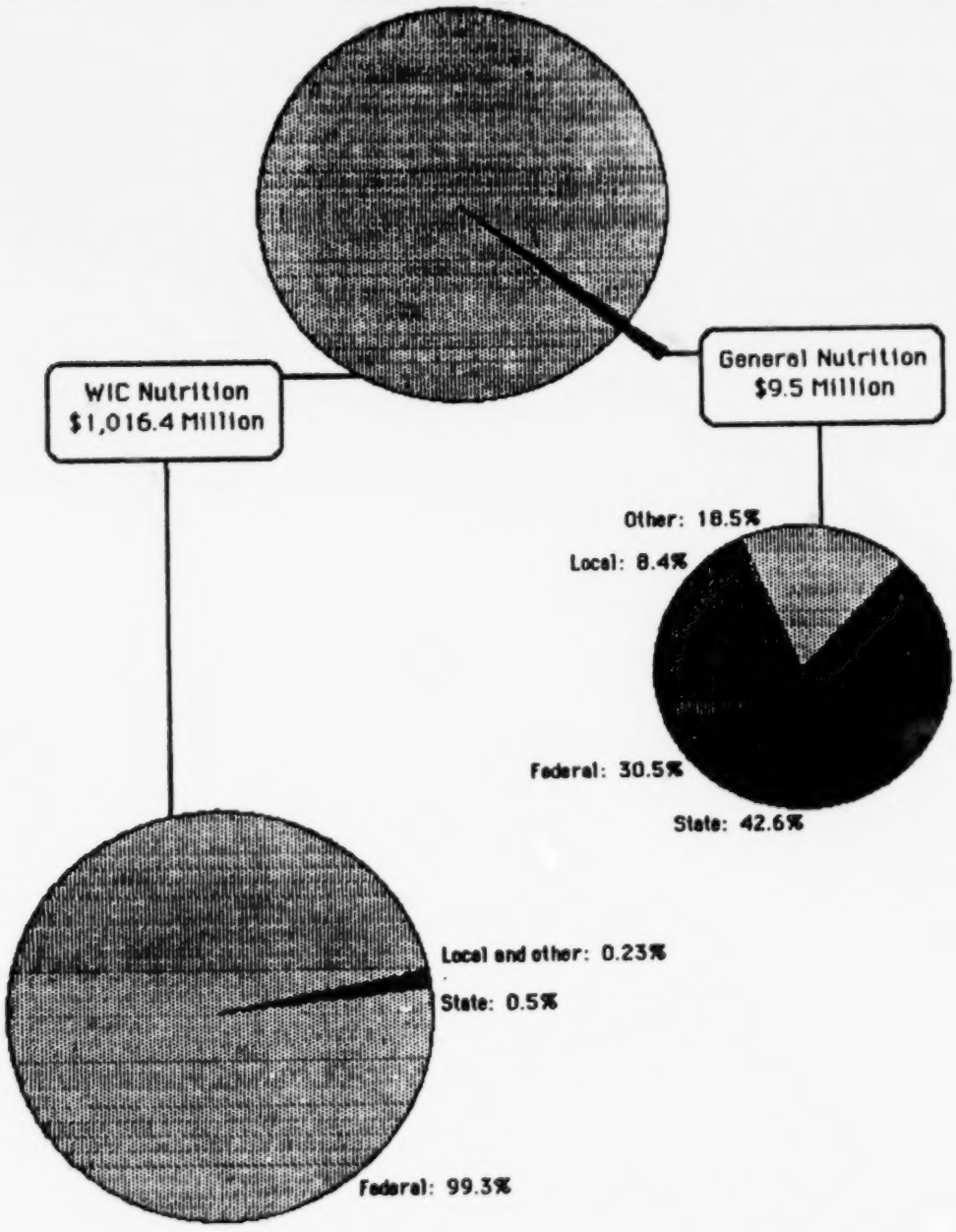


Source: ASTHO Report on Public Health Services for Mothers and Children

* Sources of funds data for the general nutrition and WIC supplemental food programs (Figure 12)

Figure 12

STATE HEALTH AGENCY EXPENDITURES FOR GENERAL NUTRITION AND WIC NUTRITION PROGRAMS, BY SOURCE OF FUNDS: 50 SHAs, FY 1983



I would like to conclude this presentation with a few thoughts about the problems encountered as we collect data.

- Designing questions is easy compared to data collection. Even taking into account the availability of data as we design the survey instruments, there is usually a lag time of 3-5 years before we begin to receive reasonably complete information.
- Is there really a lack of data or a lack of communication between the MCH program and the Nutrition or WIC programs?
- How can you begin to use some of this information at the program level?
- How can you help us collect better data?

One of the first steps towards resolving these problems is knowledge and understanding of the problems. I think the theme of this meeting is an excellent idea and I know I have certainly gained a better understanding of the problems at the state level.

Another "baby step" is access to the data already collected. What was reported by your state? Is it accurate? We are ready to offer our assistance in providing this information to you. We would like to work with individual states or groups of states in any way we can. How is the communication between programs in your state? How can it be improved?

I hope together we can continue our efforts in the area of collection of state/local health department data on activities and impact. I can't stress enough, please call or write to the Foundation with your ideas or for assistance.

OPEN FORUM FOR PARTICIPANTS AND SPEAKERS

QUESTIONS/RESPONSES

Recorder: Molly Graber, RD, MS

Question: What are the dietary standards under use by USDA in the surveys? Is 70% RDA used as a reference?

Peterkin:

70% of the RDA is not standard. In past USDA reports, dietary levels have been compared to various percentages of the RDA met by survey participants. The RDA level will be used as a reference point in the new continuous survey. The report of the Food and Nutrition Board study of risks below the RDA may give us levels for comparison.

Question: The federal government is responsible for acting on data found by surveys. Can you abstract and summarize findings and mail them to states?

Peterkin:

USDA attempts to get information released as soon as possible from reports. The first wave of data from the continuous study will hopefully be provided at the APHA Annual Meeting in November, 1985. Summary information and data reports are available from the GPO.

Murphy:

NCHS publishes Advanced Data and other reports by subscription or order.

Question: How can states/locals use NHANES data?

Murphy:

As Mary Grace Kovar stated, a state can best use NHANES data with judgement of areas applicability to the state. It is the State's burden to pull out the correct data core and select application methods. This data set is not designed for localities. Recognize that there is oversampling of low income, certain age groups; weighting at the regional level may be a distorting factor. Application of rates to the state population data may be most appropriate.

J. Brown:

Vital Statistics data is a source of much information but information nutritionists need is often not collected, e.g., pregravid weight, smoking status, etc. A state can add information beyond the agreed upon vital records core. Missouri has much extra data on its record.

Question: Would you describe how surveys collected economic status and economic change data?

Peterkin:

The 1977-78 NFCS collected income in the past year before and after taxes and last month's income by source.

Murphy:

NHANES is not satisfied with its income collection. Income before taxes is used. Surveys have attempted to identify income data in selected programs, e.g., School Lunch, WIC and elderly feeding.

THE NORTH CAROLINA APPROACH TO USING DATA FOR COMMUNITY DIAGNOSIS AND PROGRAM DEVELOPMENT

Charles J. Rothwell, MBA, MS

A process in North Carolina called a Community Diagnosis takes place every two years. The next cycle starts this fall. Although not strictly for nutritionists, I hope you will be able to see the relationship between this effort and planning for nutrition services. For those who have read and believe in this nation's 1990 public health objectives or for those wishing to develop public health objectives peculiar to your own state, this should be of interest to you.

As you may be aware there is no simple recipe for the dispensing of public health in our nation. The state health department in North Carolina, called the Division of Health Services, contains most of the traditional public health services: programs for women and children, epidemiology, chronic disease and health promotion services, laboratory services, dental health services, and a full range of environmental health services. However, in North Carolina there are some peculiarities, the main one being that health departments located in all 100 counties are autonomous and are creatures of local government. Also Medicaid, Certificate of Need and facility licensing are sister agencies under our umbrella department. My organization, called the State Center for Health Statistics (SCHS), is located in the Division of Health Services and is not only responsible for statistical services to programs, but also for planning. Planning in SCHS can be defined as state level public health planning, and to some extent, local health department planning. My agency mostly is funded by state dollars. Secondary sources of funds are derived from contracts and grants from federal agencies such as NCHS, NIEHS and NIH as well as indirect cost charges of the health department to federal programs. My agency is not a vital records organization, although we are responsible for vital statistics. We are a generalized health statistics center providing information in such areas as vital statistics, census, health facilities and manpower statistics, Medicaid and Medicare data, communicable disease data and local health department services data. We also provide a generalized telephone survey capability to programs. We did not obtain these capabilities without active program support; and I believe they have received ample dividends from their support. If you don't have a state center for health statistics or have one in name only, you might wish to consider how to help fund such an agency. Pooling program dollars can go a long way in creating a viable statistical organization. Without such an organization, much of the community diagnosis process would not be possible.

What is a community diagnosis? What are we hoping to accomplish and how is it undertaken in North Carolina? I will discuss the constructs of this effort and then will discuss the problems that have surfaced. Finally, I offer a challenge to nutritionists to look beyond nutrition surveys.

Every two years we try to get our local health department staffs to step back and take a look at the health needs of their communities. This is not an easy task, for our health departments are busy providing services, and more importantly, feel helpless when they compare their capabilities to larger health care institutions in their community. However, staffing and financial size has nothing to do with this mission. Public health, in my opinion, if it becomes too involved in serving patients who present themselves for services will wind-up being no more than ambulatory care centers for the poor. I believe public health should act as the conscience of its citizens in the area of health. Some agency must take responsibility for determining community health needs and plan for them. Who is more appropriate than our local health departments?

To help health departments analyze their community health needs, my agency supplied each health department with its own data book. Was this new data from a new data system? No, it was a compilation of data from many existing systems. Many of us have the idea that we don't have enough data or the right data to make a decision. Many seem to be on a journey to find the Holy Grail. If we can't find the information on our desk, then maybe we should create another data system to supply us with this information. I believe I am describing the genesis of many new, expensive and under utilized data systems. In stark contrast stand the piles of computer print-out and journals that we never have time to read and digest. There is nothing more upsetting in bureaucracy than staff not willing to make a decision because they don't have the right data. Well, the status quo is a decision and we've shown that we are masters in this arena. We must make the best informed decision and then later improve the quality of supporting information. We seldom do either. Thus the county data book is an effort to put together in one place, data that now exists and that could be useful in examining community health needs. Naturally, I wish we had more information, especially in the area of morbidity; however, we first must use what we have before seeking something else.

Along with the county data book, we supplied each health department with a guide on how to conduct a community diagnosis. This publication was not written for academicians; it was meant to be a step-by-step, cookbook approach. The intent of the publication was to explain the concept of a community diagnosis, what the data meant in the data book and how it could be used to support a community diagnosis. With those data books and guides tucked under our arms, my staff and I explained the community diagnosis process to health departments through a series of regional meetings.

At those meetings we discussed the uses for the data in the data

books. Much of this information was already available in other publications and reports and it was depressing to note how little any of the health department staff knew about information that they had been receiving for years. However in support of health department staff, my organization alone publishes on an annual basis 12 different reports, about six special studies and an untold number of pages of computer generated tables. A county that is really interested in examining its data must wade through all this material. At least the data book places much of this information under a single cover. By the way, we do not create a new data book each year because there are 100 different books -- one for each county. We send to each county, updated pages as information becomes available. Hopefully counties are updating their books, yet; I am sure many are throwing the pages away.

I should mention the types of information contained in the data book. The first 20 pages or so relate to population data derived from the census. For each table showing state data, there is a corresponding table showing comparable county data. We provided a wide variety of vital statistics. This information was displayed both in tabular and map form. For example, we provided pregnancy data by high risk categories for all reported products of conception (births, fetal deaths, and abortions). We provided matched infant birth and death data so that high risk maternal conditions could be identified. We provided crude and adjusted mortality rates. Multiple cause rates were used for such diseases as hypertension and diabetes where underlying cause data was not useful. We also provided county-specific Medicare and Medicaid utilization rates by diagnosis. Nursing home and hospital information was provided. Health department staffing and funding levels were provided so that County A could compare itself with County B.

Another area the data book and guide attempted to describe were new uses of the same data. To many health providers, rates or statistics are not interesting. They denote the aggregate while service providers are tuned to the individual. Thus the concept of a sentinel health event was discussed and used. With sentinel health events, if an event occurs it is a cause of concern. The event should at the very least, raise the eyebrow of the local health director. For example, deaths due to cervical cancer to women less than 50 years of age, children less than two years of age dying in motor vehicle accident when there exists a child seat belt restraint law, deaths to infants >2500 grams with no congenital anomalies or pregnancy complications could all be sentinel events. Another measure introduced was the Kessner Index which is an indication of adequacy of prenatal care. Basically, the indicator is created from three pieces of information from the birth certificate: gestational age, number of prenatal visits and when the first prenatal visit took place.

To go back to the point on matched infant birth and death files, it is amazing how many states match infant birth and death records but never analyze the information. States with similar infant mortality rates may have very different problems. Matched files allow for the

analysis of birth weight distribution and mortality fluctuations, effects of regionalized perinatal care, effects of statewide prenatal care services, etc. If your state is not using this information, go back to your office and find out why not.

As counties used this information to conduct a community diagnosis, what did the state expect to receive? First, counties did not have to undertake a community diagnosis. The process was voluntary. For those counties that participated, we did not ask for a copy of the community diagnosis, only the results of the diagnosis as it related to the state. We asked for three items of information:

- county health needs that allow for public health department intervention
- strategies by which the health department could intervene
- support (funding, legislation, training, staffing, lab services, equipment, etc.) needed from the state health department to accomplish these strategies.

The State used the information to determine its expansion budget request to the legislature as well as adjusting its existing support to health departments. This part of the process has been quite successful.

Let me mention some of the problems with community diagnosis:

- Undertaking a successful community diagnosis is an act of commitment by the health department that it is responsible for the general health environment of the community. To undertake this effort, just to please the State misses the entire point.
- Many health departments give the project to their health educators to write. Usually the document is well written but engenders little commitment from the staff. The process should be a shared responsibility of the staff.
- Some departments do not use the data book. They view their county health problems solely by the patients that present themselves everyday to their department.
- Some departments do not want the responsibility of public health in its broadest sense. Why should we be held accountable for failures in other parts of the health care system?
- Many departments have had bad experiences with past planning initiatives and thus are distrustful of an effort requiring the services of many of their staff.
- North Carolina has not conducted a statewide community diagnosis. Although my center has written such a document, it carries no weight since it was developed by statisticians. (A very similar problem to a diagnosis being written by the health educator at the local level). An example of outstanding state efforts in this area would be Utah and New Jersey. Certainly a State should set an example for its local health departments.

What does this all mean to nutritionists? You probably noticed that I have said nothing about undertaking community level nutritional

assessments through something like a HANES Survey or a door-to-door nutrition survey. As a matter of fact, I didn't provide any measures of nutritional status in the data book -- or did I? Does something have to use the word "nutrition" to be of interest to nutritionists? We all realize that many of our health outcomes are directly related to nutritional status. Shouldn't nutritionists be developing sentinel nutritional health events much like NIOSH has done for occupational health and shouldn't these events be outcome oriented? MCH folks should not be the only ones talking about the issue of infant mortality. Major improvements in infant mortality will come from improvements in prematurity and I believe a considerable part of that improvement will relate to maternal nutrition. Again why are chronic disease and health promotion folks the only ones talking about smoking and alcohol abuse when WIC staff may have more of an effect than anyone on both mother and child. One of the quickest and most sure ways of improving prematurity rates might be the cessation of smoking and drinking of mothers during pregnancy. The literature indicates that women are more amenable to life style changes during pregnancy than at any other time. Certainly when talking to women about their diet during pregnancy, it is an opportune time to discuss the relationships between proper nutrition, smoking, drinking and birth outcome. Therefore why shouldn't lower prematurity rates be a nutrition outcome? What about smoking rates for women of childbearing age? What about smoking/alcohol rates of WIC women? My point is that when measuring global indicators of nutritional status of the community it is not necessary and indeed may not be preferable to measure nutrition intake, hematocrit/hemoglobin levels, etc. However, we do need to identify, measure and hold ourselves responsible for indicators of poor community health outcomes that reflect poor nutritional status or practice.

CURRENT STATUS OF 1985 RECOMMENDED DIETARY ALLOWANCES AND POTENTIAL USES FOR SETTING PUBLIC HEALTH NUTRITION POLICY

Henry Kamin, Ph.D

I wish I could be completely open about the new RDA's and give you the actual numbers. However, the draft is in the middle of the review process and must get the approval of the Food and Nutrition Board and the National Academy of Sciences before the actual figures are made public. So I will concentrate more upon approaches toward getting these numbers, rather than upon the numbers themselves.

Four and a half years ago, when I was given the task of chairing the present RDA Committee, I was scared to death. I had had enough formal training in nutrition, plus some service with the Food and Nutrition Board, to know and revere the RDA's, and I hoped to be up to the task. I don't know whether I was, but my Committee has been superlatively competent and supportive, and I've gotten a remarkable education in nutrition in the last few years. I'll name my Committee: Phillip Farrel, Helen Guthrie, Victor Herbert, Bob Hodges, Max Horwitt, Orville Levander, the late Hellen Linkswiler, Jim Olson, and Peter Pellett. Myrtle Brown started out as our Executive Secretary. After she was replaced by Linda Myers and Sushima Palmer, it was still necessary to retain her as a permanent guest and consultant, to take advantage of her remarkable knowledge of nutrition and her historical insight into past RDA's.

We started our task in late 1980 by assigning responsibilities for different sections to the various Committee members, and then holding a workshop where various authorities both from our own Committee and from the outside discussed advances in the methodology of establishing requirements. We then engaged in what I think was the most important part of our task: learning. Over two or three years we updated our own knowledge of nutrition with a series of informal presentations by the leaders in research on the various nutrients, either from our own Committee or invited from the outside. These informal talks were accompanied by vigorous discussions, I wish the world's nutrition students could have all been there, to get the greatest course in nutrition which has ever been offered.

After this period of learning, we started writing drafts, which the individuals brought to the full Committee for further discussion, argument, and hammering into shape. We finally created a reasonable first draft, sent it off to the reviewers at the Academy, received their comments (and with 11 reviewers, you may be assured that we got

every bit of the critical spectrum from praise to denunciation), responded to the comments, and sent it back for the final reviews. The final text should come out sometime this summer.

When we undertook the task, several things became clear as our discussions progressed. It has been 40 years since the first RDA's appeared, and the time may well have come for "zero-based budgeting", to re-examine original assumptions and calculations, and try to rebuild RDA's from the ground up. I might say, in passing, that our predecessors have done a splendid job, and our re-evaluation did not lead to massive revolutions.

We set ourselves the task not only of preparing RDA's, but of justifying them, making sure that the reasoning was both evident and sound, that the reasons for each RDA were made clear to the reader, that the individual RDA's were consistent with each other, and that the final table was consistent with the text. This is much more difficult than it appears, as we had discovered some lapses in the chain of logic and internal consistency in previous editions. I'm sure we have made our own lapses, but we've tried hard not to. Because of our requirements of clarity and rigor, the new RDA's will be longer than the last edition. We hope that they will be as useful.

The new RDA's have been created in a climate unlike that faced by previous Committees. Two major issues have come to the forefront in the past five years. The first is the increasing awareness of the possible nutritional consequences of total dietary pattern: the recognition that there is more to nutrition than simply the sum of nutrient requirements. The other is the growing public awareness or perhaps even obsession with nutrition. Nutrition has become a fad as well as a legitimate discipline. I sometimes think that the most important nutritional disease in America is nutritional hypochondria. Alleged "health food" stores have proliferated, quackery runs high, and there is a too-broad assumption that nutrition can be a panacea, and that foods are either medicines or poisons. In this climate, our Committee is exposed to scrutiny to an extent greater than that of our predecessors. After the publication of the RDA's, I expect to spend more time ducking rotten tomatoes than catching roses.

Who is the audience for RDA's and what is the RDA's objective? The audience is the same as it always was, the health professional, such as you, rather than the ultimate consumer. We expect the content of the RDA's to be transmitted to the ultimate consumer by health professionals, and we retain the same level of technical language as in the past. What are the objectives? The objective is to protect all of the population from the consequences of nutrient deficiency. In past editions, we have noted the objective of protecting some large fraction, statistically defined, of the population. But our Committee has been aware of the fact that none of us can identify a single normal individual who, while ingesting the RDA of a nutrient, has been shown to suffer a deficiency in that nutrient. Therefore, in the past, the RDA's have actually protected <u>all</u> of the population rather than just a large fraction, and our present Committee didn't wish to

change this. I will speak more about population variability later.

What is the definition of the RDA's? We have made a slight but important change in the definition used in the previous edition. We need to emphasize that the RDA's are an approach to nutriture which is based upon the summation of the requirements for individual nutrients. Since there may be additional nutritional effects of dietary patterns, we no longer state that the RDA's are designed to meet the "known nutritional needs of practically all healthy persons" but are designed to "protect practically all healthy persons from nutritional deficiencies". The problem of dietary patterns and chronic disease is being actively investigated, and the National Academy of Sciences will probably initiate a series of reports analogous to RDA's, but dealing primarily with dietary patterns rather than with individual nutrients. We find it necessary to emphasize the dividing line between the two types of approaches, both of which are valid, but which are based on different types of data and different methods of evaluation.

Thus, the current definition of RDA's is: "Recommended Dietary Allowances (RDA) are the levels of essential nutrients, that, on the basis of available scientific knowledge, are judged by the Committee of Dietary Allowances of the Food and Nutrition Board, to be adequate to protect practically all healthy persons from nutritional deficiencies".

As we re-examined the whole question of RDA's, we found we had to re-evaluate a number of previous approaches, assumptions, and ground rules. The first was the sticky question of whether the RDA's applied to groups or to individuals. I personally have always been puzzled by this distinction, which I did not consider useful, and concluded that previous emphasis on groups stemmed in part from the history of the RDA's, which were first created in wartime, when the national necessity was insuring adequate food supplies to the population. To evade the group vs. individual dilemma, we have created a series of hypothetical human beings called "reference individuals" of both sexes, various age groups and of stated weights and heights, for whom specific RDA's have been stated. If an individual does not fit exactly in age or dimension, his needs can be obtained by interpolation of the table. For populations, multiplication of the individual requirement of reference individuals can be performed to assess group needs. We think that this is a simpler and more flexible base from which to operate.

We have re-examined age categories and have expanded them to provide a little more detail during those periods, such as infancy, adolescence, and senescence, where the physiology of an individual changes relatively rapidly. This adds to the complexity of our final table, but we hope that it is warranted. We have re-defined the heights and weights of typical individuals in the age groups, using not "ideal" weights or heights, but actual averages obtained in recent data for the entire population.

We have paid particular attention to the requirements of infants and children, and of pregnant and lactating women. We have given more subdivisions to the first year of life because there is a vast physiological difference between an infant of two and a half months of age from one who is five and a half months old. Creating these subdivisions has removed some apparent anomalies in previous RDA's, where close examination of the data showed, for instance, that the "standard" mother could not successfully nurse the "standard" infant, when all of us knew very well that she could. And we have redefined lactation, using newer data which show that the average daily milk secretion is closer to 750 ml than 850 ml. All of these changes and re-evaluations have had the effect of changing the numerical value of many RDA's not because principles had changed, but because of changes in the methods of computation. These changes do not represent revolutions; they simply represent recalculations. In the case of the elderly, we have recognized for some nutrients such as the B vitamins, that there is a decline in lean body mass with advanced age, and this may be expected to cause a modest decrease in the requirements for those nutrients which serve as the chemical core for those biological coenzymes which are distributed in the aqueous phase of cells.

How does one arrive at an RDA? First of all it always seems necessary to reiterate that RDA's are not minimal requirements but are recommendations which contain safety margins, so that virtually all of the normal population is protected. To arrive at this figure, it is usually best to try and find out the minimal requirement, and then multiply it by some factor which represents the variability within the population, so that the RDA can be expected to cover the normal individual with even the highest requirement. One then often puts in an additional safety factor to cover the possibilities that the data base is inadequate. Obviously, as the data base improves, this factor can become smaller.

We rapidly discovered, as did our predecessors, that each of these values is more complex than appears on the surface. What do we mean by the term "requirement"? It should be the minimum intake required for good health, but what facet of health is critical? Is there a minimum requirement for a population? For an individual? Is it the <u>average</u> minimum requirement, a <u>minimum</u> minimum requirement, or a <u>maximum</u> minimum requirement? No authorative body has ever given a definition, and I'm not sure if they can.

What about variability of a population? If you have five data points, it is always possible to pull out your pocket calculator, calculate a standard deviation, and make the decision to set an RDA which will encompass two or three standard deviations, to cover some large proportion of the population. But in doing this, you make the assumption that the distribution curve is Gaussian, and you can't make this assumption on five data points. Nor does biology dictate that variability within a population must be Gaussian. If a person's body temperature is 103, we don't consider him as a normal at an outer fringe of a certain number of standard deviations. We say he's hyperthermic. Thus, for most nutrients, we really guess at variabili-

ty rather than calculate it. And where we do calculate it, for purposes for convenience, we must always recognize that the calculations are probably artificial. The bottom line, with limited data, is that we cannot assume that a certain number of standard deviations encompasses any defined percentage of normal population.

Another factor we don't know is the effect of intermittancy. Experimental scientists, to make experiments interpretable, usually put animals (or humans) on constant amounts of nutrients, and then study the effect. But real people don't follow this pattern. They may gorge on a nutrient one day and then have a long period without. What does this do to requirement? We can make some guesses, but we don't really know.

Although this may seem depressing, the fact remains that somehow or other we can get a reasonable RDA for nutrients. We can collect data on nutrient intake from the food supply of apparently normal, healthy people; we can make epidemiological observations of average population levels of nutrients, and see which levels are associated with symptoms and which are not; we can make biochemical measurements to assess the degrees of tissue saturation, or the adequacy of molecular function in relation to nutrient intake. We must then, make the decision as to whether defects in these parameters correlate with defects in health. We can do nutrient balance studies. We can put people or animals on experimental diets and observe the consequences; we can evaluate pharmacodynamic and kinetic data on humans to establish and describe turnover rates and body pools.

None of these techniques, alone, can give precise nutrient requirements. But one finds, in examining the actual data, a convergence of values into a range which begins to define a requirement, and then we can do our informed guess-work to define requirements and create recommendations.

In the past balance studies have been important in establishing requirements for certain nutrients, but we have grown to distrust many of them, particularly for those nutrients where adaptation to change is slow. If we take some short-term balance studies literally, we would come to the conclusion that, at the rate of loss indicated at low intakes, that a certain group of the population would be dead in months, whereas another group at a slightly higher intake will become solid blocks of some rare metal within a year. This isn't so. In most cases, the human adapts to changes in intake so that balance can be achieved over a broader range of nutrient intake than short-term experiments indicate. There are exceptions where this concept remains valid: adaptation to changes in protein intake is sufficiently rapid that nitrogen balance studies of short duration do indeed give useful information. In the case of calcium, where the tragedy of osteoporsis reflects bone loss over decades, calculations of the amount of total bone loss match rather well extrapolations from the rate of bone salt loss as measured in relatively short-term balance experiments. But we have learned to look at balance experiments with a skeptical eye, and to require that there always be some independent validation for their

conclusions.

When we make the transition from requirement to recommendation, we lean towards generosity, because this is the only prudent approach. We recognize however that we cannot be profligate, because that is wasteful of the food supply and is not of benefit for the entire population.

How do the RDA's handle the problem of nutritional effects, apart from frank deficiency states? In reality, we do not try to handle it, but we do recognize some ground rules. We know that any ingested material, be it food or foreign matter, can be expected to have a pharmacological effect at some level of intake. Vitamins and essential minerals are not exceptions. It can be expected at some level of intake that the various vitamins will have some secondary effect, and we cannot state a priority, whether this effect is good or bad. This is in the realm of pharmacology and, if the effects described are at intake levels outside of the range obtainable in a normal diet, we relegate these effects to the field of pharmacology and do not consider them in creating an RDA. But we recognize that if there is a pharmacologic effect, then the nutrients should be treated by the same criteria as drugs. Are they safe? Are they effective? Are there risks? Are there benefits? We can't let food faddists furnish the only answer.

The other problem with secondary effects of nutrients is their chemical specificity for physiological or pharmacological effects. There are a number of interesting reports of possible effects of carotenoids on the development of certain cancers. If there is an effect, its chemical specificity seems to be quite different from the chemical specificity which gives some carotenoids vitamin A activity. Even though vitamin A is one of the carotenoids which may have activity, it is by no means unique. How should this data affect our recommendations for vitamin A ? What about the antioxidants which include selenium, ascorbic acid, tocopherols and synthetic (food additive) antioxidants? To what extent shall their interrelations enter into the formulation of an RDA? The answers aren't easy.

But there is one viewpoint which our Committee does hold. That is that we should not rush too rapidly into areas where data are sketchy, uncertain, or highly preliminary. The RDA's should be authoritative and should not flutter like weather vanes.

Now about applications of RDA's. This is of great interest to all of us. As a result , a Subcommittee on the Uses of the RDA, chaired by Dr. Patricia Swan, was created by the Food and Nutrition Board. Its draft report is currently under review, and there is a possibility that it may appear simultaneously with the new RDA's. The latter, by the way, summarizes some of the general principles of utilization of RDA data, so that it can be free-standing and need not depend upon the "Uses" Report. In applying the RDA's to specific situations, certain principles should be kept continuously in mind. The first of these is that the human race, to survive as long as it

has, must have considerable adaptability to variations in nutriture.

Some of this adaptability comes from our ability to store nutrients. This storage is variable, as is our intake of the various nutrients. Fortunately, there is a tendency for those nutrients which are stored for relatively short times (thiamin is an example) to be eaten frequently so that day to day variability in intake is relatively low. Those whose intake is more intermittant, such as vitamin A, tend to be stored over longer periods of time. Thus there seems to be a fortunate match between the biological liability of nutrients and typical patterns of day-to-day variation in human intake.

This of course, raises the question of the word "daily". The RDA's are not recommended daily allowances they are recommended dietary allowances, even though the RDA's are expressed in units of intake per day. But this does not mean that every nutrient must be taken in RDA amounts every day, since storage capabilities and the biological lifetimes of the molecules provide high buffering capacity. Thus the RDA's, while expressed on a daily basis, really represent time-averages over considerably longer periods - weeks, sometimes even months. There is no biological need for one to get an RDA every day, or 1/3 of an RDA at every meal.

The other important principle is that RDA's are not minimum requirements but are generous and provide wide margins of safety. While achievement of the RDA is good evidence of adequacy of nutriture, the failure to achieve an RDA is by no means an index of deficiency. This is generally recognized, but it is very difficult to formulate consistent policies based upon this biological principle. Many people have hoped that a consistent formula could be applied to the RDA, so that some fixed percentage would represent a level of nutriture which, while lacking the full safety factor, could still be considered adequate. We have talked very much about this, but we cannot find a unifying principle which permits a fixed percentage of an RDA to be applied universally for all nutrients. The data base of the different nutrients is so different one from the other and the biological roles of the nutrients are so different, that each one is a case unto itself. All I can recommend is to read the text, evaluate the difference between the "requirement" and the "recommendation" and, with intelligent flexibility, do the best you can. We hope that the text of the RDA's provides useful guidance.

In this regard it is noted that RDA's have frequently served as a legal or regulatory basis for determining needed food supplies for specific populations or for specific programs. The Committee recognizes that regulations are intended to benefit the entire population. It is not necessarily objectionable that regulatory uses of the RDA's differ from the intentions of the Committee and are at variance with the biological principle on which the RDA's are based. Violations of the regulations are violations of the law; they do not necessarily imply that failure to meet these legal requirements has damaged or endangered the health of individuals of populations groups. To reach the latter conclusion, additional evidence of clinical or biochemical

abnormality must be provided.

Recognizing these principles, the Subcommittee of the Uses of RDA has tentatively suggested six guidelines:

1. The RDA's are useful in planning the nutrient content of diets and food supplies for individuals or groups, but of little use in evaluating their nutritional status. This means that one doesn't establish nutritional status just from a dietary history. Nutritional status is a clinical diagnosis.

2. RDA's are useful as guides to intake of specific nutrients but are not intended as comprehensive guides to total nutriture, since the latter includes the effects of varying dietary patterns.

3. The RDA's are generous goals for nutrient consumption, designed to provide a margin of safety; they should not be considered "minimum requirements". This last statement, by the way, encompasses the heart of the principle of using the RDA's.

4. The RDA's may be used as goals for nutrient consumption of healthy individuals over several days or weeks but should not be used as goals for nutrient consumption each day. In other words, don't take the word "daily" too literally.

5. The RDA's are useful goals for <u>total</u> nutrient consumption but are of little use in evaluating the "merit" of single foods or single meals. This guideline recognizes that we get our nutrient intake from a variety of foods, few of which contain all nutrients. We achieve good nutriture by mixing our intakes, and the more variety the better.

6. The RDA's are intended to be met by a wide variety of foods but are not applicable to diets where a major portion of nutrients is obtained from some single source or under special circumstances.

The RDA's, above all, are intended to be used as an authoritative set of reference values, to which a wide variety of nutritional values and data points can be compared. They are provided after extensive discussions and consultations. Thus, RDA's may always be used appropriately as reference values that relate to biological nutrient needs.

MET AND UNMET DATA NEEDS IN NUTRITION STATUS MONITORING: WHERE WE ARE FROM THE NATIONAL PERSPECTIVE?

Grace Ostenso, PhD, RD

A number of characteristics of a viable national nutrition monitoring system have been discussed. Those characteristics can be used as criteria in answering the question posed by the title of this session. A summary of the characteristics identified follows:

1. Standardized data bases;
2. Standardized data collection methods which are reliable, cost-effective, and non-invasive;
3. Standardized data analysis methods, including methods for determining linkages between food, nutrition and health, and for comparison between individuals;
4. Timely and continuous data collection;
5. Linkages between national surveys and state and local surveys;
6. Effective and efficient reporting and packaging of data;
7. Information feedback between data collectors and data users;
8. Education system for data users to ensure appropriate use of data and meet needs of future data users;
9. Research to improve the total system -- data management, methods, linkages, and questions to be asked about nutritional status of the population, the relationships between food, nutrition, and health, and why those relationships exist;
10. Comprehensive, systematic, and strategic; and
11. Coordinated through a government/industry/university partnership with central federal focus and leadership.

The proposed National Nutrition Monitoring and Related Research Act of 1985, H.R. 2436, incorporates these characteristics through the establishment of a National Nutrition Monitoring and Related Research Program to:

1. make more effective use of federal and state expenditures for nutrition monitoring and to improve the performance and benefits

of current federal nutrition monitoring and related research activities;

2. establish and facilitate the timely implementation of a coordinated program and thereby establish a scientific basis for the maintenance and improvement of the nutritional status of the United States population and the nutritional quality of the United States food supply;

3. establish and improve national nutritional and health status data and related data bases and networks, and support research necessary to develop uniform indicators, standards, methodologies, technologies, and procedures for nutrition monitoring; and

4. establish mechanisms for addressing the nutrition monitoring needs of federal, state, and local government, the private sector, scientific and engineering communities, health professionals, and the public.

H.R. 2436 establishes a framework for achieving the stated objectives through the establishment of an Intergovernment Science Board for Nutrition Monitoring and Related Research and an Advisory Council. The Secretary of Health and Human Services is designated to be responsible for the implementation of the coordinated program. The Secretary is to appoint an administrator to coordinate the program with the advice and counsel of the joint chairpersons of the Board and serve as the Executive Secretary for the National Nutrition Monitoring Advisory Council.

The Intergovernment Science Board for Nutrition Monitoring and Related Research is to be jointly chaired by the Assistant Secretary for Health in the Department of Health and Human Services, the Assistant Secretary for Science and Education in the Department of Agriculture, and the Assistant Surgeon General for Research and Development in the Department of Defense. The major function of the Board is to establish a central federal focus for the coordination and implementation of all federal nutrition monitoring activities, consistent with the needs of the users of the information and the essential products of a national nutrition monitoring system.

The Advisory Council is composed of fifteen members, seven to be appointed by the President, four by the House and four by the Senate. The Council members are to be eminent in nutrition monitoring and related areas. The membership is also to include representation from State and local governments, the Food and Nutrition Board of the National Academy of Sciences, various geographic areas, the private sector, academia, scientific and professional societies, minority organizations, and public interest organizations. Three members representing the Intergovernment Science Board are to be designated by the Board as non-voting members of the Council. The Council is to serve as a communication link between the appointed members, the scientific and user communities, and the federal government. The major functions of the Council are to provide scientific and technical

advice on the development and implementation of the National Nutrition Monitoring and Related Research Program and evaluate the effectiveness of the implementation of the program.

A ten-year comprehensive plan is to be developed which includes provision, by 1990, for the continuous collection, processing, and analysis of nutritional and dietary status data through a stratified probability sample of the U.S. population designed to permit statistically reliable estimates of high-risk groups and geopolitical and geographic areas and to permit accelerated data analyses. Interpretation of available data analyses is to be contracted to a scientific body which is directed to publish every two years, or more frequently if appropriate, a report of the dietary, nutritional and health-related status of the population of the U.S. and the nutritional quality of the national food supply.

In addition to maintaining and enhancing current nutrition monitoring surveys, such as the Nationwide Food Consumption Survey, National Health and Nutrition Examination Survey, the Total Diet Study, and the Centers for Disease Control Nutrition Surveillance Program, the plan is to provide for:

1. scientific and technical assistance, training, and consultation to State and local governments for the purpose of obtaining dietary and nutritional status data and developing related data bases and networks to promote the development of regional, state and local data collection services to become an integral component of a national nutritional status network;

2. mechanisms to identify the needs of users of nutrition monitoring data and to encourage the private sector and the academic community to participate in the development and implementation of the comprehensive plan and contribute relevent data from non-federal sources to promote the development of a national nutritional status network; and

3. an inventory of federal, state, and non-government activities related to nutrition monitoring and related research.

For each fiscal year of the program, H.R. 2436 authorizes a $2.0 million competitive grants program to stimulate nutrition monitoring methods research and $1.0 million grants program to assist state and local governments in developing the capacity to conduct nutrition monitoring activities.

STATE-CENTERS FOR DISEASE CONTROL PARTNERSHIP:

CDC NUTRITION SURVEILLANCE SYSTEMS

Frederick L. Trowbridge, MD

Introduction

The Centers for Disease Control Division of Nutrition considers its primary mission to be the provision of surveillance data and technical consultation to State health departments to assist in identifying groups at nutritional risk, define nutrition intervention needs, and monitor trends in nutritional status. In carrying out this role, the Division of Nutrition maintains two surveillance systems: The Pediatric and Pregnancy Nutrition Status Surveillance System and the Behavioral Risk Factor Surveillance System. In addition the Division conducts epidemiologic research to improve methods for nutrition assessment, to evaluate the representativeness and quality of surveillance data, to assess specific nutrition problems in high-risk groups, and to describe the prevalence of behavioral risk factors for nutrition-related and chronic diseases. Another aspect of the CDC role is to contribute to national level data on nutrition issues for use in identifying groups at risk and formulating public health policy. This is a summary of some of our activities in each of these surveillance, research, and national-level monitoring efforts.

CDC Surveillance Activities

The largest surveillance activity of the Division of Nutrition is the Pediatric and Pregnancy Nutrition Status Surveillance System. This system has been in operation since the mid-1970s, beginning with a small number of participating States, but now encompassing more than 30 States that are contributing pediatric data (Figure 1). The Pregnancy Nutrition Status Surveillance component of this system has been in operation since 1979 and now encompasses 17 participating States (Figure 2). We are pleased that there has been a steady growth in the number of participating States and in the volume of records received, since this strengthens the representativeness and usefulness of the data.

The purpose of the Pediatric and Pregnancy Surveillance system is to provide a useful and practical data base to State and local nutrition directors to assess nutritional status among high-risk groups, identify specific nutritional needs, target resources, and monitor long-term trends. Towards this end, we are currently expanding and changing the format of the data sent to States to make it as easy to interpret and useful as possible. Among the changes is the highlight-

ing in the reports of cases of highly abnormal nutritional indicators that could represent measurement errors but which also might represent serious nutritional problems that should receive priority attention. We will continue to list all individuals with values below the 5th percentile of the reference population and to designate them as "low" values, even though many of the children thus identified will be normal children who happen to be in the low end of the normal distribution of indicator values. Faye Wong discusses further ways in which we hope that data from CDC and elsewhere can be useful to nutrition directors in assessing needs and managing programs.

Figure 1

STATES PARTICIPATING IN PEDIATRIC NUTRITION SURVEILLANCE
FY 1984

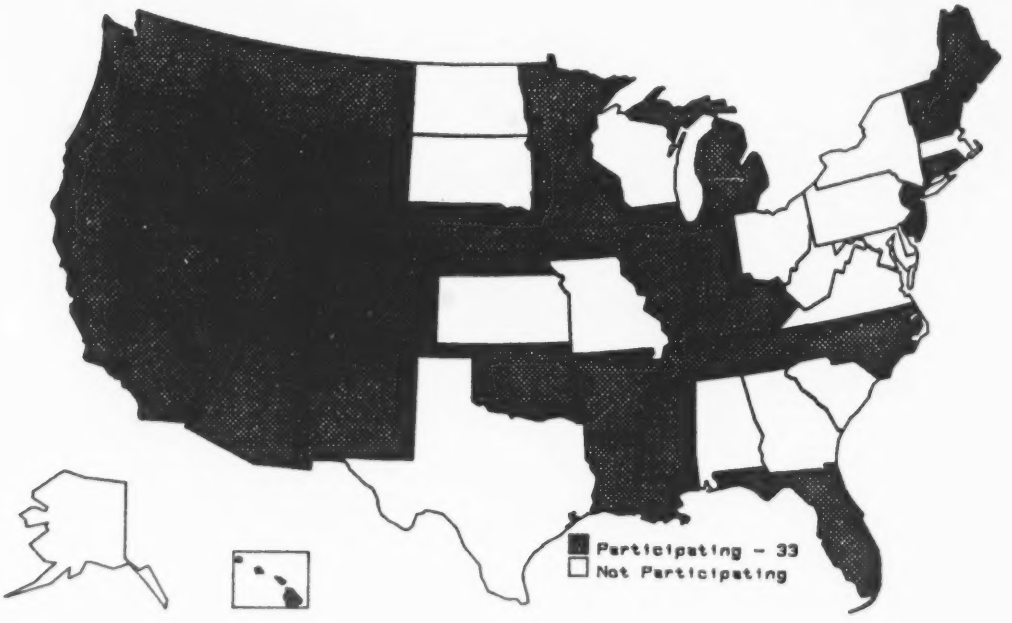
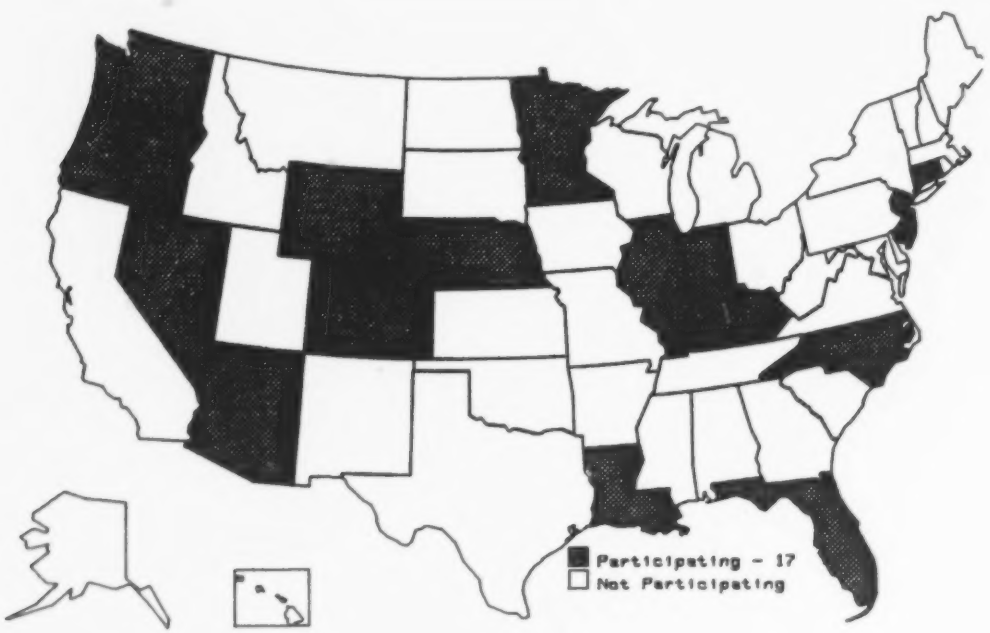


Figure 2

STATES PARTICIPATING IN PREGNANCY NUTRITION SURVEILLANCE
FY 1984



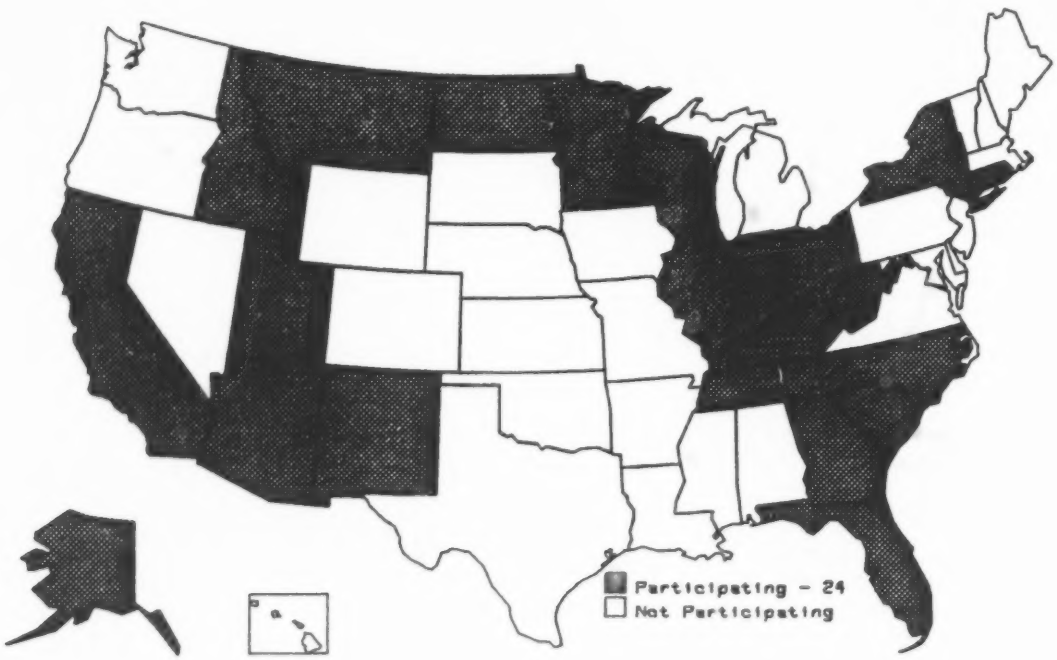
A second surveillance system maintained by the Division of Nutrition is the Behavioral Risk Factor Surveillance System (BRFSS). This system is a new venture for the Division which is intended to address chronic disease issues -- the "over-nutrition" side of malnutrition. Prior to initiating this system in 1984, we had no means of collecting representative data among adults in regard to issues such as obesity, underweight, exercise, hypertension, alcohol consumption, or other non-nutritional issues such as drinking and driving, and lack of seat belt use.

The Behavioral Risk Factor Surveillance System, like the Pediatric and Pregnancy Nutritional Status Surveillance System, is conducted with and through participating State health departments. We currently have cooperative agreements with more than 20 States to

undertake the random digit dial telephone sample interviews on which the data collection is based (Figure 3). The nutritional data collected includes self-reported height and weight to calculate obesity or underweight, dieting behavior, addition of salt to foods, as well as questions regarding nutrition-related issues including exercise, chronic and binge drinking of alcohol, and hypertension.

Figure 3

STATES PARTICIPATING IN RISK FACTOR SURVEILLANCE
FY 1985



The purpose of the Behavioral Risk Factor Surveillance System is comparable to that of our Nutrition Surveillance System: providing States with data that can be useful for identifying risk groups, targeting interventions, and monitoring trends. Technical assistance is provided to the States to help them collect the data in a standardized format and to provide assistance and guidance in data analy-

sis. Through the cooperative agreements, CDC has provided IBM-PC Computers to permit computer-assisted telephone interviewing (CATI). In addition, technical assistance is provided to help States work with communities using telephone survey techniques to assess behavioral risk factors at the local level. Although we have concentrated our analysis on nutrition-related issues, we have also been supporting the collection of data in other areas of behavior that relate to risk for chronic disease and injury. Thus, we hope that the telephone interviewing technology that we help States acquire will be used widely at the State and local level to assess and monitor a whole range of health issues.

Epidemiologic Research

A second area of activity at CDC in the Division of Nutrition has been epidemiolgic research to better define and monitor nutrition-related issues. One focus of this research has been the development of improved methods for nutritional assessment and surveillance. We worked with the National Center for Health Statistics (NCHS) to develop the growth curves that have now been adopted by the World Health Organization for international use. We continue to work with NCHS to plan for the collection of further growth data in the upcoming HANES III survey to further improve the technical characteristics of growth reference population. We have also developed hematology reference curves and are working to improve these. Another area of activity has been research to improve the interpretation of anthropometric indicators such as weight-for-height. This indicator is used as an index of obesity, but supporting data to test the validity of this interpretation have been limited. Recent studies of Peruvian children who have short stature and high weight-for-height, a growth pattern similar to Native American and Hispanic children in the United States, indicate the high weight-for-height is not necessarily associated with increased body fat. In Peruvian children, the opposite is true; these children averaged at the 60th percentile of weight-for-height but had body fats which are markedly lower than NCHS reference criteria. Thus, it appears that there are population differences in the relationship between weight-for-height and body fat. Studies are needed to examine these relationships in American children, especially Native Americans and Hispanics who have been observed to have high weight-for-height accompanied by short stature. If their short stature reflects chronic undernutrition, then how is high weight-for-height to be explained? Further study is needed to understand whether high weight-for-height of these children represents genetically based differences in body composition and body proportions.

Another research interest is the evaluation of the representativeness and quality of surveillance data. Studies have been undertaken jointly with the University of Minnesota School of Public Health to examine the nutritional status of children from a low-income census tract in Minneapolis and to compare their nutritional status with the status of children attending the WIC Clinic that serves the same area. These data are currently in preparation for publication. An addi-

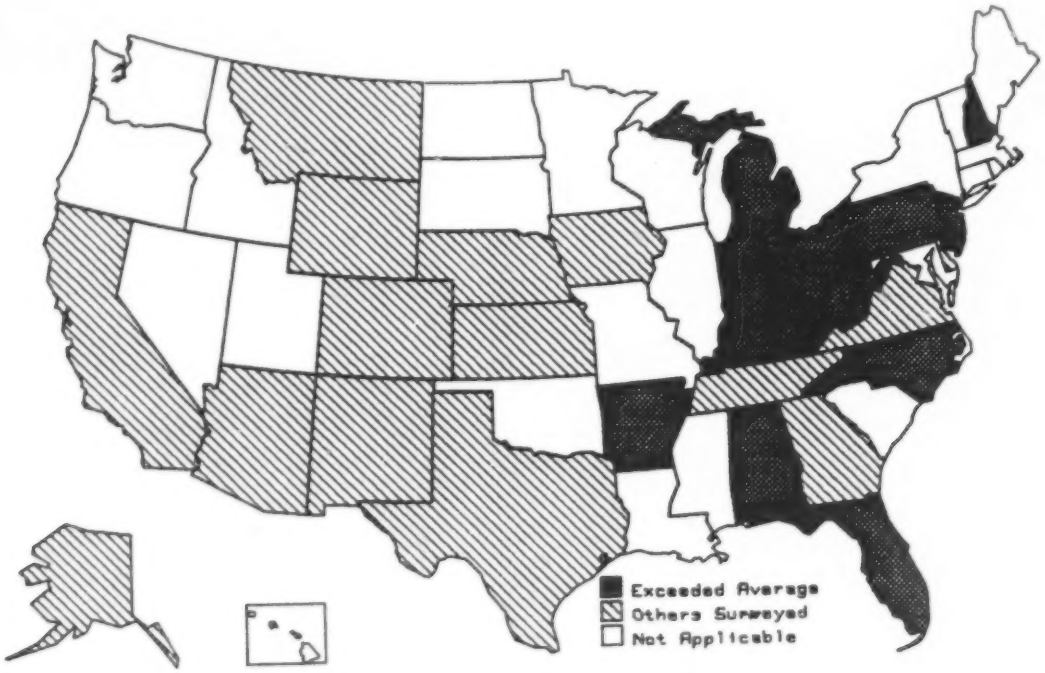
tional study is now being planned in cooperation with the Johns Hopkins School of Public Health to study the nutritional status of school entrants in Washington, D.C., and to relate the status of these children entering kindergarten to the status of children in the surveillance system from the same area. Another approach being explored is the potential to undertake linkage of birth certificate data with WIC records so that the coverage of WIC participation as a percentage of all births in a given area could be estimated. Linkage to death certificate data, if technically feasible, would add additional possibilities for investigation of interrelationships among prenatal, birth weight, and postnatal nutritional factors with infant mortality.

Another specific research interest is the assessment of nutritional problems in specific high-risk populations. Studies have been made of low birth weight and growth among Navajo children, of nutritional status among Hispanics in Arizona, and of relationships between birth weight and subsequent linear growth among black infants in the surveillance data set. The latter study, which was recently presented at the CDC Epidemiologic Intelligence Service (EIS) Conference indicated that low birth weight can account for between 15 and 40 percent of low height-for-age among children under 2 years of age.

An additional research interest is the description of the prevalence of behavioral risk factors for nutrition-related and other chronic diseases. Of particular interest in regard to nutrition are prevalence estimates for obesity. It has been observed that there is a geographic distribution to the occurrence of increased obesity prevalence, with the majority of States reporting above-average obesity prevalence located in the eastern half of the United States (Figure 4). The nutritional significance of this observation is completely unknown, but this presentation illustrates the potential to explore entirely new issues with the data base from the Behavioral Risk Factor Surveillance System. It will also be possible to compare the association of risk factors with related disease outcomes. for example, obesity prevalence can be compared by geographic region with the prevalence of conditions related to obesity such as diabetes and hypertension. These kinds of ecological correlation studies are currently being planned. Another potential use for the weight and height data from the Behavioral Risk Factor Surveillance System is the exploration of the prevalence of underweight. Preliminary studies have indicated that many women who are underweight still consider themselves to be overweight and are dieting to lose weight. This unrealistic self-perception of weight status may be an indicator of predisposition to conditions such as bulimia and anorexia nervosa. A study to further investigate the predictive value of such an unrealistic self-perception of body weight status on the subsequent occurrence of eating disorders is under consideration.

Figure 4

STATES EXCEEDING NATIONAL AVERAGE FOR OBESITY
NATIONAL BEHAVIORAL RISK FACTOR SURVEYS
1981-1983



Another critical area under investigation from the behavioral risk factor data is the prevalence of smoking and its relationship to age, sex, and educational status. Although not directly a nutritional issue, smoking is of great concern to all health professionals involved in the area of maternal and child health because of the impact of smoking during pregnancy on fetal growth and development. Our behavioral risk factor data indicate that there has been a recent upturn in the prevalence of smoking among young women. Also a recent analysis of our pregnancy nutrition surveillance data set indicates a clear relationship between smoking during pregnancy and birth weight among children of women attending WIC and other nutrition programs. This issue of smoking and its impact on birth weight requires further examination.

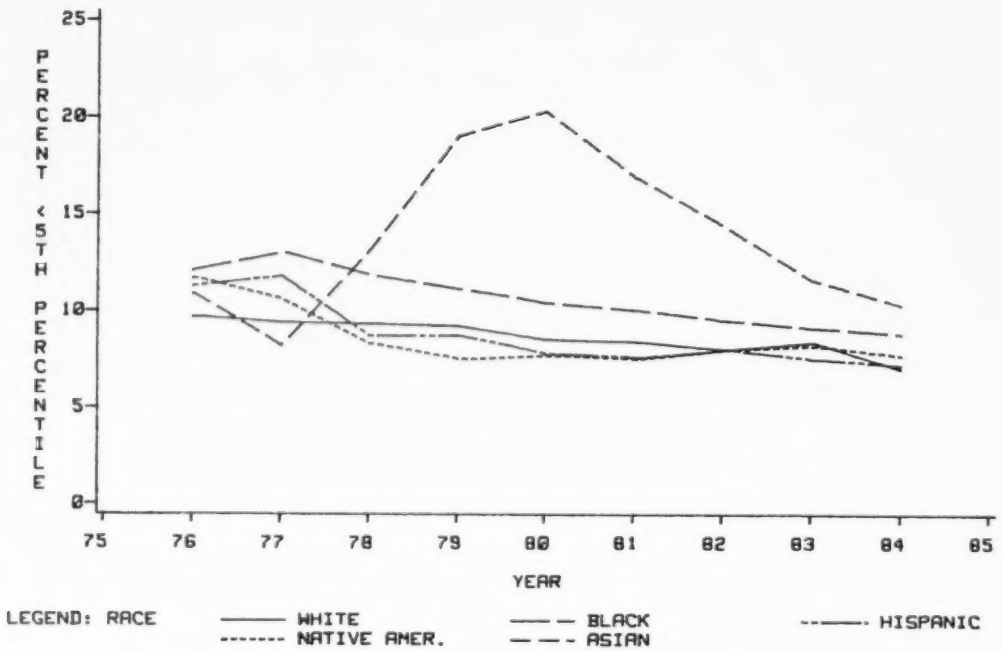
Contribution to National-level Nutrition Issues

A final area of activity in the Division of Nutrition is our contribution to the development of national-level data on nutrition issues. The CDC has monitored trends in nutritional status among the children under surveillance in the Pediatric Nutrition Surveillance System since 1976. These trends are published annually in the CDC Nutrition Surveillance Report and have also been presented as part of testimony provided to Congress in relation to formulating national-level nutrition policy. It has been of particular interest to observe whether there would be significant changes in the nutritional status of children attending the WIC Program and other nutrition service delivery programs in relation to the economic recession of the 1980s. However, a review of surveillance data indicates little change in nutrition status as indicated by the prevalence of children with low height-for-age at their initial examination for entry into the WIC or other nutrition programs (Figure 5). The only group showing a clear trend was Asian children, among whom the prevalence of low height-for-age showed a marked reduction after the peak in the late 1970's related to the influx of Southeast Asian refugees. While these data may or may not reflect the status of children who did not receive WIC or other nutrition program services, they do suggest that there has been no deterioration of nutritional status among low income children satisfying criteria for program entry over the last several years.

An issue of continuing concern is whether there are some children in high-risk populations who are not coming to the attention of nutrition services and who might be showing signs of severe nutritional problems. Consultation was undertaken in regard to studies of cases of failure to thrive in Chicago. It is our view that the interpretation of the occurrence of such cases as an index of community malnutrition is extremely difficult because of the many medical, social, and economic factors that may contribute to the occurrence of failure-to-thrive cases. In order to interpret the significance of such cases, it would be necessary to relate their occurrence to a defined population in order to calculate incidence rates. It would also be critical to explore the whole range of medical, social, and economic circumstances surrounding each case so that cases related to a primary nutritional deficit could be distinguished from those where other factors such as medical illness or adverse social circumstances such as child abuse or neglect or lack of parental knowledge about proper infant care are the underlying causes. We are in the process of developing guidelines which may help investigators interpret better the public health significance of failure to thrive and other cases of severe malnutrition that are observed in hospitals or health centers.

Figure 5

PREVALENCE OF LOW HEIGHT FOR AGE AMONG CHILDREN
LESS THAN TWO YEARS OF AGE



CDC PEDIATRIC NUTRITION SURVEILLANCE SYSTEM
NOTE: THESE ARE PRELIMINARY GRAPHS PERFORMED IN FEBRUARY, 1985.

Conclusion

The Division of Nutrition of CDC's Center for Health Promotion and Education is committed to working with State and local directors of public health nutrition to improve the assessment of nutritional problems and the monitoring of trends in high-risk populations. The excellent collaboration we receive from our colleagues is essential to addressing our common desire to improve the nutritional health of Americans. We look forward to continuing our work together towards this goal.

EFFECTIVE APPLICATION AND UTILIZATION OF DATA AVAILABLE FOR PROGRAM MANAGEMENT

Sheryl L. Lee, MPH, RD

Our charge is to present ways in which we in Arizona have applied and utilized data from our Nutrition Reporting System for Program Management. It is critical when dollars are scarce, that program decisions be based on data and program needs.

My objectives are to identify:

- reasons for establishing a data base nutrition reporting/surveillance system.
- ways in which data and information are used in Arizona for program planning, management, evaluation and quality assurance.

Some background on Arizona's Nutrition Program and it's structure will provide a better perspective on why some things may be more easily accomplished. Nutrition services are centralized into a State Nutrition Office with two Sections. One is the Nutrition Program Specialists Section which has nutrition consultants dealing with target populations of Maternal and Child Health (MCH); Crippled Children's Services (CCS); Developmental Disabilities; Child Day Care facilities and Aging. The other is the Nutrition/WIC Project Section which has the general community nutrition services and WIC Program nutrition consultants and administrative staff. Having a centralized office facilitates the ablitiy to plan services and to provide training at state and local levels.

Why do we need data? We want and need data to be able to respond to our client needs and to plan and evaluate programs. We collect data at initial screening to find out what are the problems in our community from an individual perspective. This allows us to develop an appropriate program or intervention plan for each individual as well as to examine what are the problems of the population. Data answers questions such as what to recommend to the client, and where to put program resources -- into training and materials for infants?...the teens?...the elderly?

Data assists us to know how well our programs are meeting those needs identified. Are the clients improving? Are specific problems decreasing in the population? Such data are collected at evaluation visits and can be used to make individual client decisions. Is the client ready for discharge from the program? Is additional funding needed to serve certain areas or is the problem still statewide or in a specific population? Should we reallocate our funds to provide

training to deal with our specific infant program? Or should we be concentrating on the elderly population? Having data allows us identify which population we should be addressing and then to be accountable for services provided.

Anita Yanochik Owen is the "mother" and founder of Arizona's nutrition program. She is very persistent. While heading Arizona's Program she recognized the need for the establishment of a nutrition reporting system. In our office today data is used internally to improve our programs, motivate our staff, and to set priorities. Externally we use data to justify our budget requests, respond to legislature demands as well as requests for data.

Our relationship with the Centers for Disease Control (CDC), has been a marriage and partnership. We were one of five states in the early 70's that was granted funding from CDC for nutrition services to reach target populations. The model developed then is the same as we use today. In 1974 CDC was interested in expanding it's surveillance activities to the area of nutrition. Wanting to establish a data system, we became one of the five states to pilot a National Nutrition Surveillance Program. The purpose of this surveillance system was to provide population data to local clinical sites for use in program planning; to identify pockets of poor nutritional status; and ultimately to improve the health status of the population. Some of the underlying concepts of nutrition surveillance are:

1. Data which are already being collected for client charts can be used for surveillance if a copy, made simultaneously with the client record, is sent to the data processing center.

2. For program planning, clinics need data for their own area, not for the entire state or region.

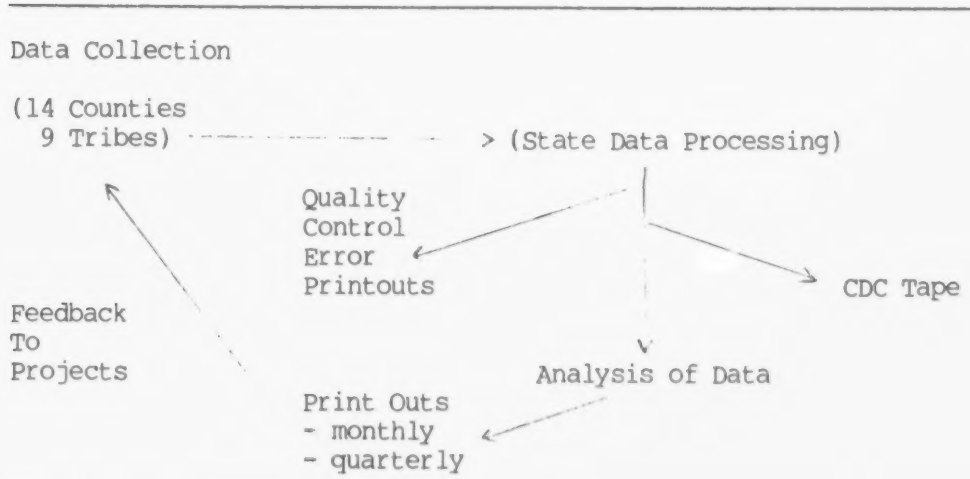
3. The turn-around time to get data back to the local project must be swift.

Figure 1 illustrates how the data flows from local projects to the State to CDC and back.

Since Arizona Nutrition Programs wanted to evaluate the impact and effects of their intervention, a patient/client tracking system was designed and implimented at the state to link follow-up visits with the initial screening visit measurements. This evaluation system told how many people found to be at risk who were enrolled in a nutrition intervention program actually showed improvements in their measurements.

Figure 1

COMPONENTS OF AZ SURVEILLANCE



Design of the evaluation program began in the Spring of 1976. The system was planned in coordination with a systems analyst from the Bureau of Vital Records and Information Systems in the Department. Additional consultation was given by the Centers for Disease Control. Modifications were made in the system to enable data to be provided to the Health System Agencies by health analysis region. At the time EPSDT was being designed, meetings were held with the Medicaid staff to design one overall EPSDT form which would also provide the information on the Nutrition Screening form.

It was critical that we worked with the other systems in our Department to establish relationships with other entities within our agency. At that time data systems were not a priority of the Department and we were going ahead to develop a nutrition surveillance program. In the Summer of 1976, two nutrition projects (county health departments) tested the system by providing input and trying to interpret output. After necessary changes were made, all county health department nutrition programs in the state were trained in the new system.

Arizona's system is a state based system in which local agencies submit their data to the State Data Processing Center where it is batched and processed. The data is edited using the CDC edit criteria. A tape is generated on the edited data for the 0 to 18 year old population for the CDC pediatric system. This tape is sent to CDC for their analysis and use. In addition the state also analyzes all of the edited data of the 0 to 99 year old populations and produces output reports. These reports include the number and types of nutri-

tion related risks and problems of the screened populations as well as the impact and change on the intervened population. Data is provided back to each local agency by county and clinics as well as by ethnic and age groups. Data are also available as statewide totals, WIC and non-WIC. In developing the state base system, Arizona went beyond CDC's National Nutrition Surveillance System in that we:

1. Expanded the number of indices: Cholesterol, CVD risks and dietary.

2. Linked clients in the system to enable program evaluation.

3. Extended age groups beyond 18 years of age.

4. Provided less turn-around time of data to local agencies/clinics.

With this background information I will discuss how these data are used in program management. The goal of the Office of Nutrition Services is:

> To develop and provide quality nutrition services as an integral component of comprehensive health care, thereby promoting the improvement of nutrition and health in the population with reduction in the number of people requiring acute care services, decrease in health care costs, and improvement of the quality of life.

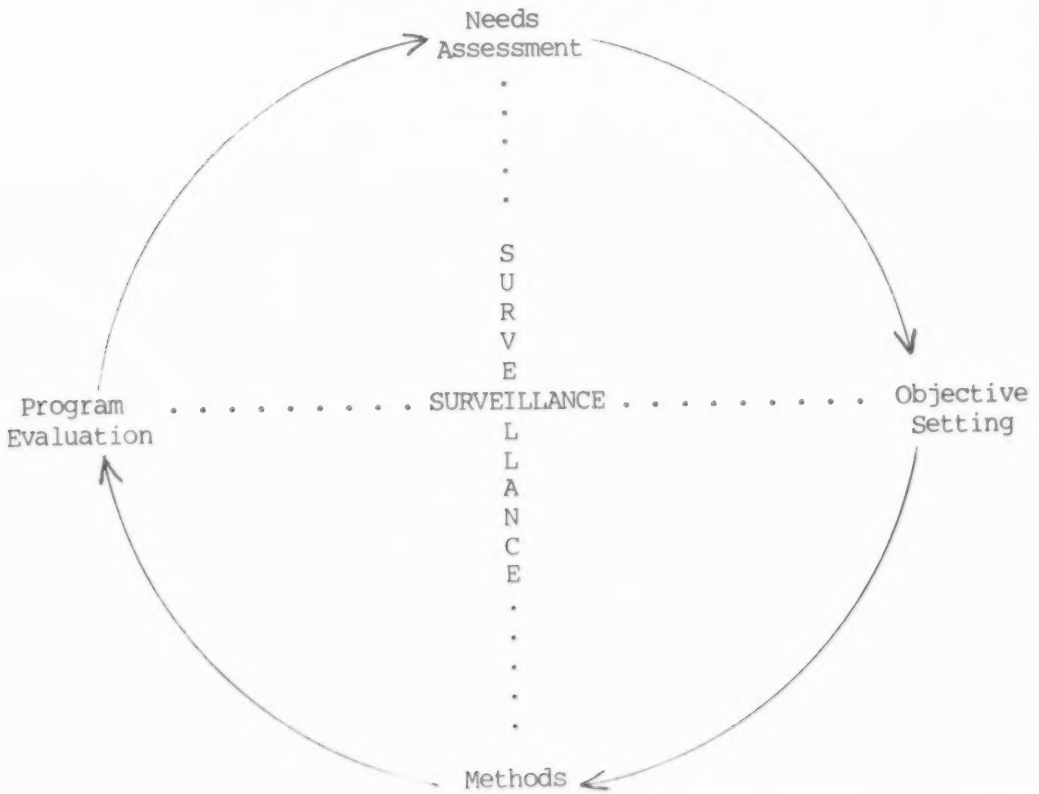
The nutrition surveillance data which we collect assists us in identifying the nutrition related health problems in the population served by our local agencies which in turn are also used in our whole program planning process of needs assessment, objective setting, method/action plans, and evaluation.

Surveillance data can be used in the NEEDS ASSESSMENT to identify problem or need:

- Define WHAT the nutritional problems are;
- TO WHAT EXTENT these problems exist (prevalence);
- Identify WHO in the population is most affected (i.e.,) male, female, age groups, or ethnic groups;
- Identifies WHERE (location) which problems prevail (i.e.,). Which region, county, clinic?

Figure 2

PROGRAM PLANNING CYCLE



In example printout "Screening-Overweight" one can determine:

- What is the prevalence in the total (state) population?
- Which ethnic group has the greatest risk for overweight?
- What age group in the total population has the greatest risk?
- For the 2 to 4 year olds in each ethnic group, what does the data indicate?

Figure 3

NUTRITION REPORTING SYSTEM
SCREENING - OVERWEIGHT FOR FISCAL YEAR 80-81

ETHNIC GROUP Age at Screen	Number Screened	Number at Risk	Percent %
WHITE			
0-5 months	2,117	125	5.9
6-11 months	1,569	93	5.9
12-17 months	496	36	7.3
18-23 months	348	34	9.8
2-4 years	1,265	80	6.3
5-9 years	175	6	3.4
10-12 years	65	2	3.1
13-14 years	37	3	8.1
15-17 years	342	7	2.0
18-39 years	2,203	488	22.2
40-59 years	357	122	34.2
60+ years	707	250	35.4
TOTAL	9,681	1,246	12.9
INDIAN			
0-5 months	2,327	325	14.0
6-11 months	2,079	248	11.9
12-17 months	495	80	16.2
18-23 months	322	61	18.9
2-4 years	1,292	265	20.5
5-9 years	31	3	9.7
10-12 years	2	-	-
13-14 years	7	-	-
15-17 years	142	7	4.9
18-39 years	2,004	850	42.4
40-59 years	86	51	59.3
60+ years	4	-	-
TOTAL	8,791	1,890	21.5

Figure 3 - Continued

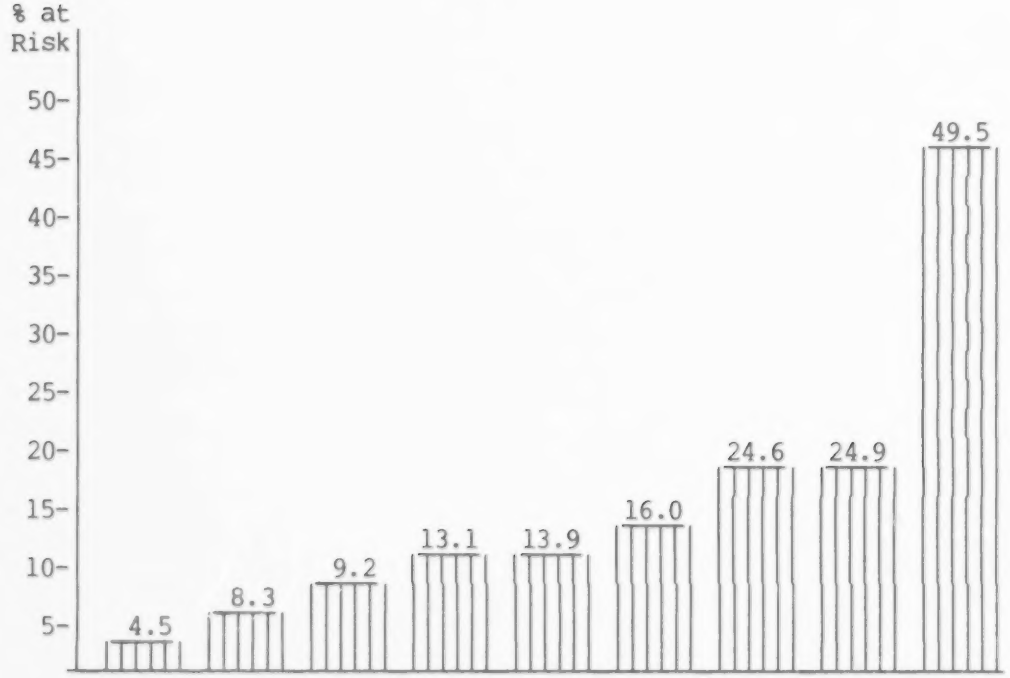
MEXICAN AMERICAN			
0-5 months	2,972	245	8.2
6-11 months	2,244	185	8.2
12-17 months	519	58	11.2
18-23 months	298	49	16.4
2-4 years	1,387	160	11.5
5-9 years	345	44	12.8
10-12 years	101	12	11.9
13-14 years	49	4	8.2
15-17 years	193	8	4.1
18-39 years	1,702	586	34.4
40-59 years	255	139	54.5
60+ years	77	33	42.9
TOTAL	10,142	1,523	15.0
TOTAL			
0-5 months	7,902	724	9.2
6-11 months	6,206	539	8.7
12-17 months	1,582	181	11.4
18-23 months	1,010	149	14.8
2-4 years	4,126	520	12.6
5-9 years	566	54	9.5
10-12 years	168	14	8.3
13-14 years	95	8	8.4
15-17 years	717	23	3.2
18-39 years	6,103	1,975	32.4
40-59 years	725	321	44.3
60+ years	800	290	36.3
TOTAL	30,000	4,798	16.0

Two examples illustrate how we have presented data on the population screened. First by total population, what is the extent and prevalence? (See Figure 4)

Figure 4

PREVALENCE OF DIFFERENT RISK BY AGE

Total Population Screened



# Screened:	10,585	22,372	7,610	5,407	22,676	30,000	7,689	30,858	5,628
Age:	> 6 mos.	< 18 yrs.	> 6 mos.	> 3 yrs.	< 18 yrs.	All Ages	> 10 yrs.	All Ages	> 2 yrs.
Problem:	Low hemoglobin	Underweight	Low hematocrit	High blood pressure	Short stature	Overweight	Smoking	2+ CVD risks	High serum cholesterol

*Non-pregnant population

Second by the prevalence of different risk by age groups. (See Figure 5)

Figure 5

PERCENT AT RISK FOR EACH PROBLEM
BY AGE WHEN ASSESSED*

	<18 years	18-59 years	60+ years
Low Hemoglobin	4.2	5.4	2.8
	(0-17 mo.)	(18 mo.-17 yr.)	
Underweight	10.1	4.0	
Low Hematocrit	9.3	9.7	6.9
High Blood Pressure	3.7	9.7	46.9
Short Stature	13.9		
Overweight	9.9	33.6	36.3
		(12 mo.-23 mo.) 12.7	
Smoking	(10-17 yrs) 30.0	24.8	18.5
High Serum Cholesterol	54.1	40.4	41.9
Number Assessed	22,940	7,046	872

*Non-pregnant population

The next step in the planning process is using data for OBJECTIVE SETTING - write expected outcome objectives which directs you to:

- Where you want to go;
- Which path to take (resources, time, money); and
- When you've reached it (specific time frame, tangible, recognizable cues).

An objective that we had in 1982 as an outcome objective was to reduce the prevalence of overweight. We used the printout on screening to determine what impact we had on the previous year. A realistic level was set at 9% or less for the 0 - 23 month old group. (See Figure 6)

Figure 6

OUTCOME OBJECTIVE EXAMPLE FOR OVERWEIGHT

By June 1982:

The percent of clients 0-23 months old presenting with overweight will be 9% OR LESS.

NUTRITION REPORTING SYSTEM
SCREENING - OVERWEIGHT FOR FISCAL YEAR 80-81

Age at Screen	Number Screened	Number at Risk	% Percent
0-5 months	7,902	724	9.2
6-11 months	6,206	539	8.7
12-17 months	1,582	181	11.4
18-23 months	1,010	149	14.8
0-23 months	16,700	1,593	9.5
2-4 years	4,126	520	12.6
5-9 years	566	54	9.5
10-12 years	168	14	8.3
13-14 years	95	8	8.4
15-17 years	717	23	3.2
18-39 years	6,103	1,975	32.4
40-59 years	725	321	44.3
60+ years	800	290	36.3
TOTAL	30,000	4,798	16.0

A process objective involved the number of people to be assessed the upcoming year. Using two different printouts the level could be set. One of the printouts was the unduplicated count of clients screened and evaluated:

Process Objective Example #1

By June 1982: 37,000 people will be assessed to identify problems in anemia, underweight, short stature, overweight, high serum cholesterol, and other risks of cardiovascular disease.

(See Figure 7)

Figure 7

NUTRITION REPORTING SYSTEM
PROJECT COUNT OF EVALUATIONS FOR FISCAL YEAR 80-81
TOTAL POPULATION

Project	Scrn Only	Scrn&1	Scrn&2	Scrn&3
Apache	395	73	6	
Cochise	1,310	245	24	2
Coconino	1,416	133	10	
Gila	589	65	4	
Graham	313	52	13	1
Greenlee	537	33	6	
Mariocopa	3,063	1,684	37	
Mohave	655	86	5	1
Navajo	512	61	10	
Pima	2,590	628	6	
Pinal	2,672	445	14	
Santa Cruz	1,389	185	7	1
Yavapai	1,503	219	21	
Yuma	1,426	161	18	
Papago	262	60	5	
Sacaton	298	120	4	
Fort Yuma	68	30	6	
Navajo Nation	4,129	2,142	19	
Colorado River	85	60		
Hualapai	116	14		
Salt River	96	45		
San Carlos	223	103		
White River	264	70	8	
Unknown		4	1	
State Total = 30,853 =	23,911 +	6,713 +	224 +	5

Figure 7 - Continued

PROJECT	1EVAL	2EVAL	3EVAL	4+EVAL	TOTAL
Apache	164	140	7		785
Cochise	298	271	9		2,159
Coconino	348	226	7		2,159
Gila	228	159			1,045
Graham	63	41	14	6	503
Greenlee	243	67	4		890
Mariocopa	2,046	2,695	86	2	10,513
Mohave	194	79	6		1,026
Navajo	191	148	4		926
Pima	1,097	412	6		4,739
Pinal	955	567	26		4,679
Santa Cruz	635	214	11		2,442
Yavapai	392	129	10		2,274
Yuma	505	125	17	1	2,253
Papago	337	104	1		769
Sacaton	132	238	6		798
Fort Yuma	54	91	16	1	15,742
Navajo Nation	3,130	6,208	114		15,742
Colorado River	26	92			263
Hualapai	12	4			146
Salt River	116	78			335
San Carlos	175	261	18		788
White River	227	229			791
Unknown	1	2			7
State Total	12,469	12,580	362	10	56,279

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Or use the Record Count Summary. (See Figure 8)

Figure 8

NUTRITION REPORTING SYSTEM
RECORD COUNT SUMMARY
FOR FISCAL YEAR 80-81

Statewide	Screen		
	WIC	Non-WIC	Total
0-5 months			8,105
6-11 months			6,382
12-17 months			1,032
18-23 months			1,612
2-4 years			4,206
5-9 years	27	554	581
10-12 years	1	175	176
13-14 years	11	91	102
15-17 years	248	496	744
18-39 years	3,013	3,279	6,292
40-59 years	97	657	754
60+ years		872	872
TOTAL			30,858
		(PG women with outcome)	+ 8,294
			39,152

We want to make sure that the data we collect is useful, therefore an objective was written on the quality of data processed. Levels set are lower than those indicated on monthly edit error reports as we strive to improve the quality of information obtained.

Process Objective Example #2

By June 1982, The quality of records submitted will be improved:

A. Percent of records with trans-update errors will be 8% or less.

B. Percent of records with fatal errors will be 2% or less.

C. Total number of records in error will be 15% or less.

Data will allow you to monitor your METHODS/ACTION PLAN. As the program year proceeds, say six months, surveillance data accumulated will indicate whether or not you are on schedule to achieve the outcome level set and whether you will accomplish your objectives. Remember the process Ojective #1.

Objective:

By June 1981, 37,000 people will be assessed to identify problems in..... (Refer to process objective in previous examples).

According to the Record Count Summary printout:

Achieved	Target Yr.	% of Yr.	% Target Met
1st Quarter	37,000	25	18.4
6 months	37,000	50	34.5

Figure 9

NUTRITION REPORTING SYSTEM
RECORD COUNT SUMMARY FOR QUARTER JULY - SEPTEMBER

Statewide	Screen		
	WIC	Non-WIC	Total
0-5 months			3,012
6-11 months			653
12-17 months			310
18-23 months			230
2-4 years			796
5-9 years	2	170	172
10-12 years		35	35
13-14 years	3	23	26
15-17 years	48	116	164
18-54 years	595	768	1,363
55+ years		68	68
TOTAL			6,821

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Figure 9 - Continued

FOR QUARTER OCTOBER - DECEMBER

Statewide	Screen		
	WIC	Non-WIC	Total
0-5 months			2,334
6-11 months			463
12-17 months			221
18-23 months			142
2-4 years			1,006
5-9 years	1	107	108
10-12 years		42	42
13-14 years	1	9	10
15-17 years	43	91	134
18-54 years	631	745	1,376
55+ years	1	120	121
TOTAL			5,957

If data indicates you are not going to meet the objective, then you should re-assess and examine WHY NOT. Determine if the methods are appropriate or if you need to try another method/alternative or contingency action plan. Finally, data can be used for EVALUATION which is critical for any program or service. Did you accomplish what you set out to do? For example, in the above example on number of people to be assessed at the end of the fiscal year, we did meet 105.8% of our stated objective-effort. (Figure 9b):

Achieved	Target Yr.	% of Yr.	% Target Met
1st Quarter	37,000	25	18.4
6 months	37,000	50	34.5
12 months	37,000	100	105.8

Figure 9b

RECORD COUNT SUMMARY FOR FISCAL YEAR 80-81

Statewide	Screen		
	WIC	Non-WIC	Total
0-5 months			8,105
6-11 months			6,382
12-17 months			1,612
18-23 months			1,032
2-4 years			4,206
5-9 years	27	554	581
10-12 years	1	175	176
13-14 years	11	91	102
15-17 years	248	496	744
18-39 years	3,013	3,279	6,292
40-59 years	97	657	754
60+ years		872	872
TOTAL			30,858
			+ 8,294
			39,152

In terms of impact and effectiveness of our services, an outcome objective for anemia hematocrit and hemoglobin was:

Evaluation of Effectiveness:

Example: Of those identified at assessment to have low hemoglobin or low hematocrit and return for follow-up assessment at 6 months, 80% will no longer be at risk for low hemoglobin or low hematocrit.

Our data would indicate we had come close to meeting our stated levels. However, we have learned that one needs to go one more step beyond in evaluating impact. That is, looking at your surveillance date in a retrospective manner and asking different types of questions. A different set of program analysis should occur to evaluate the impact of your intervention.

Figure 10a

NUTRITION REPORTING SYSTEM EVALUATION/HEMATOCRIT FOR FISCAL YEAR 80-81

	Number Eval.	Previous Prevalence No.	Previous Prevalence Pct.	Current Risk No.	Current Risk Pct.	% at Previous Risk Who Improved
0-5 months						
6-11 months	238	14	5.9	4	1.7	92.9
12-17 months	2,942	104	3.5	59	2.0	89.4
18-23 months	2,796	67	2.4	44	1.6	85.1
2-4 years	10,723	735	6.9	690	6.4	76.9
5-9 years	336	33	9.8	19	5.7	75.8
10-12 years	4			1	25.0	
13-14 years	1					
15-17 years	17	4	23.5	5	29.4	75.0
18-39 years	332	46	13.9	10	3.0	95.7
40-59 years	33	2	6.1	5	15.2	50.0
60+ years	32	1	3.1			100.0
TOTAL	17,454	1,006	5.8	837	4.8	79.7

Figure 10b

NUTRITION REPORTING SYSTEM EVALUATION/HEMOGLOBIN FOR FISCAL YEAR 80-81

	Number Eval.	Previous Prevalence No.	Previous Prevalence Pct.	Current Risk No.	Current Risk Pct.	% at Previous Risk Who Improved
6-11 months	148	9	6.1	1	.7	100.0
12-17 months	1,026	28	2.7	17	1.7	89.3
18-23 months	1,098	27	2.5	23	2.1	85.2
2-4 years	2,600	132	5.1	111	4.3	78.0
5-9 years	189	7	3.7	5	2.6	57.1
10-12 years	22			1	14.3	
13-14 years	7	1	14.3	1	4.5	
15-17 years	86	10	11.6	5	5.8	70.0
18-39 years	1,036	65	6.3	65	6.3	80.0
40-59 years	99	8	8.1	8	8.1	50.0
60+ years	146	3	2.1	4	2.7	33.3
TOTAL	6,457	290	4.5	241	3.7	78.8

A question which needs to be asked is "Does your data drive your program or your program drive the data?" Remember, I said data collection was not a high priority or perceived as a need by the Department when we first got into the "data business" in 1974. We were doing "our thing" and sometimes it was kind of scary being out there by yourself.

The Department now has data systems as a high priority and it is a part of our State Agency Agenda for the Year 2000. Today we are attempting to integrate our data systems and we have State Agency objectives. We have now incorporated some of our Office of Nutrition Program objectives into the Agency's objectives. For example, some of the Department's prevention objectives are: By the year 2000: "Reduce the incidence of cardiovascular disease (CVD) by 15%, and Reduce infant mortality rate by 20% (an MCH objective). Interesting enough our objectives are consistent with what Mary Peoples presented:

Pre-conditions	Programs	Screening
(Number with elevated serum cholesterols)	(Nutrition Intervention Services)	(Awareness) ↓ Decrease incidence of CVD (reduction)

By evaluating our data we have been able to expand nutrition services into the elderly population through the Senior Nutrition Programs (Title III C) and hopefully next year into the preschool population through child day care facilities. Additional indices are being added to enhance our ability to be more specific in our program planning and evaluation.

Surveillance data can also be used in Quality Assurance activities to evaluate quality of services being delivered. Information from the individual at risk lists are used to identify client names which are used in chart reviews. Monthly Record Edit Reports are used to assess quality of records submitted and identify possible training needs of staff.

Financial and resource management of our programs is facilitated when data is available. Resource allocations and changes in policies or index/test used in program implementation can be made when you have data to assist you in making decisions. For example, iron deficiency anemia does not appear to be a major nutritional problem in our population. The cost of a hemoglobin test is 200% of the cost of a hematocrit test. Because funding resources were remaining the same and other costs increasing, the decision was made to switch to hematocrit tests as the screening index instead of hemoglobin. Decisions to continue interventions or screening of specific individuals, groups, etc., can be made particularly when data indicates it may not be cost effective to continue or that a change needs to occur. Data also facilitates the process of awarding funding allocations and

determining staff ratios for contracting of services.

At present the surveillance data is processed on a minicomputer and stored in the State's mainframe system. In order to expand our capabilities and capacity to manipulate and process data, we have purchased microcomputers at state and local levels. Plans include establishing a data base for CCS/developmental disabled populations which the normal reference population cutoffs cannot be utiltized; a maternal PKU registry; quality assurance review data base and group dietary information. In addition, we will be downloading surveillance data to complete additional analysis and investigations.

Summary

Surveillance data can provide information for planning and evaluation by:

- Quantifying and qualifying the need;
- Allowing you to set realistic objectives.
- Providing feed-back on whether methods are effective or appropriate;
- Providing information on whether you've accomplished your health/ nutrition objectives and increased or improved the health status of the population.

In developing this system, we learned to:

- Keep it simple. A great quantity of data is generated from just a few measurements. All computer printouts must be analyzed and interpreted. Do not collect data merely because it may be interesting for someone someday. Know how you are going to use each bit of information. "What is it I want to know?"
- Design your output printouts before designing your data collection instrument. This will clarify what information you need to collect.
- Involve everyone who is going to complete the input forms and use the output printouts in the design of the system. The comments of the local staff and others were invaluable throughout the development and testing of the system.
- Pre-test. No matter how good an item looks on paper, a pilot/field test is the only way to be sure you will get what you want from your coders and computer.
- On-going revisions. Identify new questions to answer which your data may be suggesting. Try and keep your data system innovative and look for ways to enhance your system (i.e.,) microcomputers and software integrate your data with other in-house systems (i.e., Health Promotion, CDC Health Risk Appraisal).

Finally, you may be saying, "I don't have the resources (monies or hardware) to do these things." Well, you might be surprised to learn that there is probably some hardware/ software not being fully utilized within your agency. Check with the people in your electronic data services to identify what resources there are within your agency. Call upon the people in Health Education. Most of them have access to

microcomputers, particularly if they are involved with CDC Behavioral Risk Factor Surveillance Program. Once you have surveyed the resources, develop a working relationship with them and you may find you will have access to their equipment. Look for alternative sources. Just because you don't have the money doesn't mean you can't accomplish some objectives in getting a data base started.

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Faye Wong, R.D., M.P.H.

The effective application of nutrition data is the last but most important step in the data collection process. First, available sources of nutrition data are identified. Next, appropriate nutrition data are selected for use. Finally, these data are used "effectively" to "produce the intended or expected result" (Random House College Dictionary) in establishing, targeting, expanding, or managing nutrition programs and services.

My focus will be on "making the most" of available nutrition data, the need to identify objectives for the use of nutrition data, to manage these data, and to be selective in choosing available data for use in making program decisions. Nutrition data need to be effectively managed to facilitate their timely availability, enhance their representativeness, maximize their quality, and assure their efficient utilization. Knowledge of the limitations and appropriate uses for available nutrition and related health data minimizes the chances of making decisions based on erroneous information.

Objectives for Nutrition Data

The effective application and efficient utilization of nutrition data begins with knowing your objectives for using data. "What do you need data for?" "Why do you need data?" "How do you want to use data?" As you may recall, Judy Brown asked, "What do you want to know?" as a first step in identifying data needs. Sue Madden suggested the same question telling us that it is important to know the questions to be answered before designing the data elements to be collected. Once the objectives for nutrition data have been determined, the following questions can be answered:

"What nutrition data are needed?"

The answer to this question is directly related to your objectives for nutrition data. For example, data needed to monitor the outcome of pregnancy are different from those needed to monitor the prevalence of overweight among adults.

"What nutrition data are available?

Are available nutrition data being fully utilized?"

Jerriane Heimendinger and Mary Peoples both reminded us that often, more data are being collected than are being aggregated and utilized. Jerriane suggested that we define our data needs, use resources at our fingertips, and not collect more than will be used. On the other hand, Kathy Cairns pointed out that for some high risk

groups, there are gaps in available nutrition data when compared to needs (e.g.adults, the elderly). She suggested the pursuit of multi-disciplinary efforts in building new databases and planning ahead for funding them. How can we "make the most" of available nutrition data?

Making the Most of Available Nutrition Data

National and Other Sources of Nutritional Data

Sources of nutrition-related data already mentioned include birth and death certificates, census data, hospital discharge records, vital statistics, and data collected by a variety of State/local health and social service programs. The efficient utilization of these and other sources of nutrition-related data entails keeping up-to-date with their availability and securing timely access to them. Additionally, it is important to become familiar with these data, including their implications for public health nutrition programs.

CDC Nutrition Surveillance System

At CDC, we have been reviewing the adequacy and appropriateness of the nutrition surveillance system in meeting State needs. The above questions are some of the same ones we have been asking ourselves about surveillance. Recently we asked participating States for feedback on how they were using nutrition surveillance data and whether they found the data useful. In particular, we were interested in whether available nutrition surveillance data were being fully and effectively utilized.

We asked States to identify the roadblocks to their full participation in surveillance. Many States who responded indicated that there was inadequate staff time to adequately review the nutrition surveillance reports and/or to follow-up with local clinics. Others indicated that they needed additional knowledge and skills in the analysis, interpretation, and application of nutrition surveillance data. What can be done to alleviate some of these roadblocks to using available nutrition surveillance data in States?

The feedback from States suggests a need to maximize the practical usefulness of nutrition surveillance reports; develop State staff expertise in data analysis, interpretation and application; and prioritize the various possible uses for the data. Some progress has been made in each of these areas in recent years. Enhancement of the current pediatric nutrition surveillance reports to improve their practical usefulness is underway. The computer programming for the enhancements are expected to be completed this summer and the updated reports will be introduced to States this fall. Several enhancements were designed to further facilitate the efficient utilization of nutrition surveillance data in States.

For example, the sorting of monthly reports for distribution will be easier with the addition of county and clinic names to the line

listing of Children With One or More Low/High Nutritional Values. Additionally, the children listed on this surveillance report will be prioritized for clinic follow-up. Children who fall below the 3rd or above the 97th percentile of the NCHS/CDC growth reference will be identified with a double asterisk (**) to more readily identify them for follow-up. These children will be listed first on a clinic's report along with children whose measurements are considered biologically implausible ("highly probable errors"). A question mark symbol (?) will be used to identify measurement(s) of uncertain accuracy so that clinics can follow-up potential errors in data collection. Children who fall between the 3rd and 5th or the 95th and 97th percentiles of the reference population will identified with a single asterisk (*) and be listed next.

In the past year, CDC has placed a priority on conducting "data application" workshops for participating States using their own nutrition surveillance data. Our objective has been to build staff knowledge and skills for surveillance data analysis, interpretation, and application within States. Some States have utilized our training materials to conduct additional nutrition surveillance workshops on their own. Another area of emphasis has been to periodically complete an indepth review of a State's nutrition surveillance data and provide specific recommendations for follow-up. Through such technical assistance and consultation, we hope to assist States to address prevalent nutrition problems and to correct sources of preventable errors.

We plan to continue both of these activities and also to begin asking States for feedback on the specific recommendations made for follow-up. Doing so will provide us with feedback on the utilization of nutrition surveillance data in States and on the practical usefulness and appropriateness of technical assistance provided. The development of instruction sheets for each nutrition surveillance report will also help to facilitate data interpretation and application. We plan to develop instruction sheets for the updated nutrition surveillance reports.

The prioritization of various possible uses for nutrition surveillance data within States will help to avoid roadblocks in data use caused by information overload. Many nutrition surveillance data items are provided in the reports. Since State and local data needs vary, some data items will be more useful than others. Priorities for the utilization of surveillance data are directly related to a State's objectives for data use. As discussed earlier, the most important questions to ask are, "What do you need data for?" "Why do you want data?" "How do you want to use data?" How else can you "make the most" of available nutrition data especially those under your own control?

In addition to participating in nutrition surveillance, many States also have their own WIC (Supplemental Food Program for Women, Infants, and Children) data systems or are beginning to develop Statewide comprehensive health data systems. Many factors contribute

to the timely availability, quality, and efficient utilization of output from these large data systems. My experience with nutrition surveillance over the past 10 years has convinced me that whether at the local, State, or Federal level, a particularly critical factor is the need for an effective system for the management of data. This begins with a firm commitment to manage and utilize available nutrition databases. This data management system should be designed to:

1. monitor data collection to assure coverage, completeness, and timeliness in reporting;

2. monitor quality control to assure the identification and prompt follow-up of problems and sources of potential errors in the data (e.g. equipment, assessment procedures, recording, data processing);

3. distribute reports promptly (which reports, to whom, and by when) to assure data accessibility once available;

4. analyze, interpret, and utilize data in making program decisions at the State, regional, county, clinic level;

5. review periodically the adequacy of existing data collection system in meeting current needs and enhance it as needed.

Future areas for CDC emphasis could include providing consultation to States to: 1) prioritize applications for surveillance data; 2) integrate surveillance data use into regular activities; and 3) establish a management system for surveillance data.

Limitations and Appropriate Uses of Available Nutrition Data

Whether using nutrition data from national representative probability samples. the CDC surveillance system, a State-specific data system, or other local surveys, it is important to have an understanding of the limitations and appropriate uses of these data in order to use them effectively in making nutrition program decisions. Some basic considerations in selecting nutrition data or in interpreting these data appropriately include having a thorough knowledge of the credibility of the source of nutrition data, the representativeness of the study population, the methods and quality control used for data collection, and the methods used for data analysis.

The credibility of the nutrition data used is an important factor in building support for nutrition programs and services. The inappropriate utilization of nutrition data from questionable sources could result in the loss of support for nutrition programs and services. Compare this to the questionable credibility of a health care professional, especially a nutritionist, who sells liquid protein diets. It is much more difficult to regain lost support and credibility than to not lose it in the first place. Where are the nutrition data from? Who collected them? How were the data collected? How were the data

analyzed? These are important questions to ask in determining the credibility and reliability of data available for use in making nutrition program decisions.

The representativeness of the study population in any nutrition data system influences the extent to which the findings can be generalized to the population at large. The biases present can result in an underestimation or overestimation of nutrition problems in the community. These biases need to be considered when interpreting the data for use in nutrition programs. There are three common sources of bias in the study population of nutrition data available to State and local nutritionists. If biases exist in your data system, there are often things you can do to minimize them.

First is the selection bias of data from a "convenience" population. Participants in WIC, soup kitchens, or organized weight loss groups (e.g. Weight Watchers) are examples of "convenience" populations. They voluntarily participate in these programs or services. Hence, nutrition data on the participants of these programs may not reflect the status of those in the community who do not participate. Program-specific nutrition data can be further biased when data are collected on less than 100 percent of the convenience population of participants or when data are not collected on a representative sample of this population (e.g. when data are collected on only one-half of the funded WIC clinics in the State). Where this is a problem, the nutrition data may not even be representative of the program participants. The assurance of good coverage in data reporting will help to control this type of bias in your nutrition data.

In contrast, NHANES (National Health and Nutrition Examination Survey) data are from a cross-sectional, representative sample of the non-institutionalized U.S. population. When NHANES data are appropriately weighted to account for the sampling design, they can be used to provide population-based estimates of the prevalence of various nutrition problems.

A second source of bias in nutrition data is the eligibility criteria for participation in particular programs. Program-specific data collection systems are often designed to provide information on participants. Nutrition data thus, are not collected on persons who are excluded from participation. For example, some WIC data systems are designed to collect data only on persons enrolled in this program. Since breastfed infants may not be enrolled into WIC until they are weaned, nutrition data may be collected on the nursing mother but not on the breastfed infant. Hence, the nutrition data on children below one year of age may underrepresent breastfed infants. Once again, I emphasize the importance of asking, "What do you need data for?" "Why do you want data?" "How do you want to use data?" prior to designing or updating a data collection system.

Program-specific data systems are, unfortunately very common in public health agencies. Each categorically funded program has its own data system. This often results in a duplication of effort in data

collection and in the expenditure of resources for the development and management of health data systems. A long term goal to aim for is the "pooling" of dollars from all categorically funded programs and using these monies to develop a single comprehensive health data system. If the opportunity exists in your State, be sure to plug nutrition data items into such a comprehensive health data system.

A third source of bias in nutrition data can be caused by limitations in the data collection system or by a lack of participant cooperation in providing data. Hence, available nutrition data tell us nothing about those for whom data were not collected for whatever reason. For example, sources of bias in the CDC Behaviorial Risk Factor Surveillance System include persons without telephones, those who are never home to answer, and those who refuse to participate. These types of biases are beyond the control of data collectors. In this case, data analysis and interpretation should take the biases into consideration.

As another example, pregnant women who choose not to breastfeed are usually considered a low priority for continued WIC participation after delivery. Many of these women are not required to return, or choose voluntarily not to return for post-partum WIC clinic visits. In this situation, available WIC data on pregnancy outcome would be biased by the incomplete reporting of this information. The "best" or the "worst" pregnancy outcomes may be found in the group for whom incomplete data are available. The solution to this bias is clear. If useful pregnancy outcome data are wanted, there needs to be a systematic way to assure that these data are routinely collected, processed, and analyzed.

The methods used to collect data and quality control are other important considerations in selecting nutrition data for use. Appropriate and effective nutrition program decisions should only be made with good quality data that give reasonably accurate estimates of the prevalence of nutrition problems. Attention should be given to data collection methods and quality control measures such as standardized equipment, validated questionaires, correct assessment procedures, training/supervision of data collectors, recording accuracy, and data processing.

Finally, the methods used for data analysis and for data presentation can affect the results and hence, their usefulness in making nutrition program decisions. Important factors include the selection of editing criteria, reference population and cut points for risk determination, the control of confounders in data analysis, and appropriate uses of nutrition status terminology. Related to this, the use of comparable methods for the analyses and presentation of data is necessary so that meaningful comparisons can be made of nutrition data from one source with another. Likewise, comparability in data collection methods is needed when data from more than one source are to be combined in analysis.

An example of the potential problems which result from the inappropriate analysis of data can be found in a study recently reviewed at CDC. In this study, children below the 25th percentile of the NCHS/CDC growth reference for height/age and weight/height were classified as "failure to thrive." These children are actually well within the normal range for growth. The analysis of these data also did not take into consideration the high representation of Southeast Asians who tend to be shorter than the reference population. Additionally, the author did not consider the possible influence of low birth weight infants. There was a high percentage of infants less than one year of age in the study population, including many blacks. The erroneous conclusion drawn from this study was that there was serious malnutrition among children in this community. The conclusion would likely have been quite different if the analysis were more appropriate.

As another example, it is always important to analyze birth weight outcome by maternal smoking behavior. Pregnant women who smoke have a higher prevalence of low birth weight infants. In the CDC Pregnancy Nutrition Surveillance System, the prevalence of low birth weight infants among mothers who smoke is nearly double that for non-smoking mothers. Without information on the smoking status of pregnant women, the interpretation of birth weight data may lead to erroneous conclusions and inappropriate nutrition program decisions.

Summary

Available nutrition data can be used in making program decisions. However, these data need to be carefully selected and appropriately interpreted. Limitations present in nutrition data need to be acknowledged and considered in the interpretation. Professional resources such as statisticians, demographers, and epidemiologists can be very helpful in assisting to collect, analyze, and interpret nutrition data appropriately. They should be consulted whenever available. Finally, a priority should be to minimize biases, maximize quality, and appropriately analyze nutrition data that are within your own control. This will better assure that good data are available when needed for making nutrition program decisions.

Finally, remember that data alone are merely numbers with no meaning until "packaged together" to provide useful nutrition information. Likewise, this information is meaningless until it is effectively communicated resulting in the implementation of interventions to reduce preventable nutrition-related morbidity and premature mortality. One way to enhance the communication of data is to utilize graphics. Some guidelines for the preparation and use of data graphics are provided here.

General Guidelines for Designing and Using Data Graphics

Define the Main Message ("Bottomline") to be Communicated in Your Presentation or Paper

- Consider the objective of your paper or presentation -- What outcome is desired? What do you want or expect?
- Consider the audience (administrators, legislators, parents, health care personnel, researchers etc., their level of interest, need for details etc.).

Plan Data Graphics to Help Illustrate/ Enhance the "Bottomline" Message

- Use graphs to emphasize qualitative relationships.
- Use tables to emphasize quantitative relationships.
- Integrate data graphics with the text of the presentation or paper; the data graphics used should clearly support the main message being communicated; use data graphics designed for the current purpose.
- Select the most significant and relevant data graphics to use; avoid information overload with graphics.
- Graphics for oral presentations need to be more simple and self-explanatory than those for written reports or papers.
- Overhead transparancies have advantages when compared to 2x2 slides (e.g. ability to: overlay one data graphic over another; write on them; and see the next data graphic to be presented; take less time to make etc.).
- 2x2 slides have advantages when compared to overhead transparencies (e.g. better quality data graphics are possible; lighter to carry).
- Take advantage of portable computers with graphic software packages, graphic plotters connected to mainframe computers, consult graphic artists and editorial staff, etc. when available.
- Use appropriate types of graphics for presenting data -- histograms, line graphics, pie charts, 3-dimensional, etc. -- each have different applications.

Features of Effective Data Graphics

- Completely label data graphics with titles, footnotes, etc. (describes data presented, source of data, etc.); if needed, use standard abbreviations.
- Use self-explanatory labels (X, Y axis; bars on histogram; etc.), column headings on tables, etc.
- Organize a simple concept/message around the main message; be sure that the main point catches the attention of the audience immediately and that it is understood thereafter; the information should be digestible in a few seconds.
- Use an uncluttered format, free of nonessential information.
- Use large print for audience (most meeting rooms are not designed for projection).
- Visually contrast data graphics to increase clarity and legibility as appropriate.

- Contrast brightness and tone between illustrations and backgrounds (e.g. avoid dark print on dark background).
- Consider using multiple colors versus two tone (e.g. black-white, blue-white) graphics.
- Use a variety of designs to contrast data in histograms, line graphs, etc.
- Use circle, arrows, heavier print to highlight specific data that are referred to in the presentation.
- Experiment with 3-dimensional graphics.

Features of Word Graphics

- Use key words to highlight main points; avoid graphics with long phrases or complete sentences.
- Avoid long phrases of words that go across the entire width of the slide or transparency -- they are difficult to read.
- Use large size or heavy print.

WHERE IS THE HIDDEN GOLD FOR NUTRITION SERVICES?

Turning Data Into Gold

Susan B. Foerster, RD, MPH

Previous speakers have described an array of data sources that, together with the scientific literature, constitutes a gold mine of data for promoters of nutrition programs. To move from the theoretical domain to practical application, namely methods of using data to generate favorable policy decisions, it is now necessary to link data with resource allocation. Drawing from our experiences in California, our uses have included 1) setting priorities among nutritionists for services in local categorical programs, 2) increasing nutrition services locally, 3) introducing state nutrition monitoring legislation, and 4) documenting cost benefit ratios to justify Medicaid payment for prenatal care.

In a time management retreat for state and local nutritionists in the late 1970's, health economist Tor Dahl serendipitously provided a turning point for public health nutrition and got us seriously into the data business. During the training process, we discovered that there were over 35 different definitions of priorities for public health nutrition (the number of participants in the seminar)! This ambiguity resulted in job stress and an unclear message to co-workers of what public health nutrition services should be. Initially for self-preservation, later because it made sense, the California Conference of Local Health Department Nutritionists (the local counterpart of ASTPHND) with the state nutritionists embarked on a two year project which resulted in the publication, Guidelines for Nutrition Services in Local Health Jurisdictions, 1980.

For each local categorical program, we used scientific data and our professional experience to reach consensus. Each program area contains a nutrition-related goal; several outcome objectives; community and clinical activities supporting the objectives; legal authorization for the nutrition component (where appropriate); and key scientific references. Upon its completion, the publication was submitted for review and endorsement by the California Conference of Local Health Officers (California's equivalent to ASTHO), and the State Department of Health Services top management. A suprprising but encouraging fact was that the physicians who make up CCLHO expressed the most praise for the scientific bibliographies. They had not been aware of the nature, volume and quality of published data on nutrition that could be applied in each categorical program. We had not realized it was such a well-kept secret!

The Guidelines are used by local public health nutritionists in many ways. During the annual budget cycle or when writing grant applications for new local programs, the nutritionists use them in promoting a nutrition component with the categorical program manager. A second major use is as a part of a statewide Model Standards research project in which they are cited as the technical reference document for Model Nutritional Services. Through this project in which one-third of our counties are participating, we are moving toward more comprehensive local nutrition programming.

The Guidelines are being revised for late 1986, and each program area will include expanded sections on Monitoring/Evaluation and new sections on Funding Mechanisms and Cost Benefit. Monitoring/Evaluation, the data linkage, was identified from the outset as a need in each program area. However, it took another annual meeting of CCLHDN with Don Iverson, a health education evaluation expert now with the National Cancer Institute, and a subsequent consultant contract with Dr. Joyce Vermeersch funded through Region IX of HHS MCH, to devise a monitoring scheme in key program areas. We call our system the Nutrition Management Information and Surveillance System, or Nutri-MISS for short. Nutri-MISS is still something of a gleam in our eye, but it is the basis of a nutrition monitoring bill now being considered in the State Legislature. It was introduced by the state dietetic association, the state council of churches, and a poverty action organization. If passed, the bill will fund a state pilot project to develop the Nutri-MISS concept at the state level and in several local health jurisdictions.

In the Guidelines cost benefit formulas are a new aspect of program administration with which we are still struggling. I do have a sucess story to share. Several years ago the California MCH Program combined Title V and Medicaid funds to conduct a demonstration project authorized by the Health Care Financing Administration called Obstetrical Access. OB Access tested the cost benifit of providing low income women access to comprehensive prenatal services, defined as nutrition, health education and social servives. In the three years of operation, the percent of low birth weight newborns was reduced from 7% in the controls to only 4.2% in those receiving intervention. A most dramatic drop was to 0.5% very LBW (<1500 gms.), as compared to 1.5% in the control. These results were even better with care provided earlier in the pregnancy. The savings for every dollar spent amounted to about $1.20 in the first year of life and at least $3.00 to $4.00 in the longer range.

A preliminary report of these results formed the basis of a major piece of state legislation authorizing comprehensive prenatal services in MediCal. Thus, we are now planning for the statewide system of prenatal nutrition care provided by Registered Dietitians on a fee-for-service or contracted basis. Health department nutritionists will be coordinating the local planning.

What have we learned about turning data into gold? First, this seems to work best when done as part of an interdisciplinary group.

However, it is essential that nutritionists exercise leadership and initiative in setting priorities and in defining measurable outcomes for our field. Second, we must be willing to quantify the inputs and put a dollar value on our services. This is now being done best by private practice and clinical dietitians. It needs to be done by public health nutritionists too. The services must be linked to process objectives. I hope that in the near future we will find ourselves routinely generating state and local reports on nutrition activities and costs related to population nutrition problems and trends. Third, these elements -- outcome and process measures -- lend themselves naturally to setting up contracts, memoranda of understanding and interagency agreements for discrete nutrition services within different categorical programs. While some state agencies do this now, this is an underused mechanism. For the entrepreneurial nutritionist, contracting provides a businesslike and equitable means of providing fiscal support for nutrition services while meeting the accountability needs of the contractor. I believe that we may see opportunites for contracting with voluntary health associations which need discrete types of public health nutrition services.

There are emerging public health problems for which we must begin conceptualizing the need and collect data to develop programming. These are mainly in environmental health, dealing with contamination of the food chain by toxic substances and in consumer protection, dealing with nutrition fraud.

The successes I have described were the result of combined efforts by many people. I believe that we in ASTPHND are at the point of being able to launch national initiatives that are similar to those described for one state.

Private Sector Resources

J. Michael McKechnie, MBA

Introduction

As government funds for food and nutrition program operation and research have been drastically reduced or as growth in such funding has slowed, public and private nonprofit nutrition service providing organizations have had to cut services or find new sources of revenue. I intend to suggest a practical approach first to determining what other funding sources might be supportive of nutrition programming or research and second to effectively approaching such potential sources of support.

Six questions will address whether and how to raise additional funds:

1. What sources are appropriate to approach from the standpoint of client or public opinion and the image you wish to project?

2. How do you determine which sources might react most positively to an approach?

3. How might you best work with or nurture the fundor to obtain the best product for you?

4. How do you get the greatest return for your output of resources?

5. What is the corporate milieu like and how might you fit into it?

6. What are the pitfalls that may cause fund-raising to be less than successful?

Fund raising is a task which most people greatly dislike. Perhaps that is one reason it is often done poorly.

Without fund raising, however, and without the people who have prepared themselves to carry it out, many important programs would never have been undertaken -- from symphonies to bloodbanks, from attention to women's rights to concern for the environment. Many people have been successful, and you can be too with the right mind-set, approach, and perseverance.

As we now know so well in the `80's, government cannot, and perhaps should not, try to do it all. And fundraising can become a major source of revenue for an organization, or it may provide "the margin of excellence, to develop programs and projects which would not

otherwise be possible."(1)

Perhaps your organization needs to conduct applied research or a demonstration project to show that a particular, innovative public health strategy would be effective. Or, perhaps a new kind of nutrition care service in a health care setting needs to be tested for its effect on a high risk group.

More and more organizations are interested in mounting public health campaigns to increase consumer skills in making wise decisions regarding food, diet and health. Television and other relatively expensive -- but potentially cost-effective strategies are being investigated.

And how might private enterprise share its expertise in data management? Skill transfers between business and public health organizations in the area of information technology could prove a ripe area for private support of public objectives. This could be accomplished without cash changing hands, since it is basically the expertise that needs to be transmitted.

To get started, you should be determined to raise money -- but not at any cost. You simply cannot compromise your mission or principles or present an untrue image of your organization. If you remember that you have something very valuable to offer -- your organization's integrity and the good work that it does -- you can go a long way down the fund-raising road with confidence and a good chance of success. The best approach to propel you on this road is 1) a desire to make your organization as self-sufficient as possible and 2) a strong, committed staff and volunteer support group.(1)

Finally, do not be naive about your competition. There were in 1981 691,000 registered non-profit groups. You are not only competing with almost every one of those groups but also remember that very large portions of the money in donations budgets is already committed. Thus, "You are competing for the 5% to 30% of the budget that is left over."(1) On that sobering note let's investigate how you can be successful in spite of the odds.

Prospects, Types of Funding, Funding Principles

Prospects

There are thousands of potential fundors you might approach, but deciding which are most likely to support your project -- and which you would most want to be identified with -- constitute the critical basic questions in the fundraising process. "Knowing the [potential] donor and his concerns and then matching your needs to his can make him an ideal prospect."(2) Implicit in this statement is not only that you should be aware of the potential donor's concerns but also that you should be very clear about exactly what your funding needs are.

In general, prospects can be categorized in five groups:(2)

1. Government

2. Foundations

3. Businesses

   - corporations
   - trade groups
   - retailers
   - employees
   - business associations

4. Individuals

   - major supporters from the past
   - clients or users of services
   - people in general

5. Clubs and Organizations (civic, social, fraternal, etc.)

This paper will concentrate on corporations since it is the area of greatest potential.

Types of Funding

In order to hone your approach and select a list of donors with the greatest potential for support, be very clear about the specific objectives you wish to attain. But it is also helpful to be aware of the types of funding that can be pursued, because each funding type implies a somewhat different strategy for raising the needed support.

Basically, there are five types of funding:(1)

1. Core Funding - operational costs, typewriters, basic administrative personnel, etc. This is difficult money to obtain because it is not easily identified by the donor. The best sources are some government funds, individual donors or a membership group.

2. Project Funding - development of a booklet, a speaking tour, a film, etc. This type of funding is the easiest to raise because fundors feel they are playing a measurable role in a tangible entity. Project funds are for a finite period of time covered by a definite budget figure.

3. Capital Projects - buildings, large pieces of equipment, very large and long-term projects, etc. This type of funding is harder to raise than in the past, but it may well identify new kinds of fundors for your organization. The hardest part of this type of fundraising is obtaining the first major donation. It may be wise to get that all important gift before you go public with your fundraising campaign.

4. Deficit Funding - to pay off a debt or debts for operating expenses. This is very difficult money to raise since most donors do not look favorably on an organization with fiscal problems. The best source for raising such funds is a paying membership with which you should be direct, honest, and propose a definite solution in which they can participate. Another method is to allocate a portion of debt to the over-head of each project but, again, an honest approach is recommended here.

5. Sole Source Funding -- typical of government funded operations. The problem here, no matter what the source, is, of course, that when the sole source dries up or recedes, your organization suffers greatly. So perhaps rather than spend all your efforts in lobbying the source for continued support, some effort should be expended on fund raising elsewhere. Ideally, a broad based portfolio of funding sources should be developed for any organization.

Fundraising Principles

Once the prospects are listed, the type of funding is determined, and specific objectives are determined, it is time to turn to the development of a fundraising strategy. Successful strategies are based upon some very solid principles:(2)

1. People support causes, programs, projects, or facilities, not institutions.

2. The quality of the organization's leadership is crucial because it determines the sphere of influence.

3. Personal contact should be made where ever possible at equivalent levels, peer to peer.

4. Experienced solicitors are the most effective.

5. Select your best prospects carefully since campaign effectiveness is subject to the law of diminishing returns.

6. Goals or quotas for raising funds should be carefully determined.

7. Since fundraising costs money, design a budget commensurate with expected returns.

8. Fundraising should be conducted in an atmosphere of optimism and teamwork.

9. Fundraising is a public relations operation. The campaign must create enthusiasm and measurable achievements.

Given this background the chief questions remain: "How do you interest potential donors? How do you determine which of the millions of individuals, the thousands of businesses, or the many foundations you should approach?"(1) The answer to those questions is obtained

through research, brainstorming, and a judicious process of elimination.

Foundations, Government Sources, and Other Small Donors

Foundations

An article in the January 6, 1980 San Francisco Examiner reported gloomily on private foundations, saying "They're a minor force today." While that may be true, it is not wise to completely neglect foundations in your search for support. But unless you have an inside track into a particular, appropriate foundation, the job of selecting which foundation to approach relies heavily on research -- and the odds of obtaining funds are small because of the very large volume of requests and the restricted amount of dollars available.

Fortunately, there are excellent directories and indexes widely available that list foundations and describe their giving patterns and restrictions, application procedures, and key contacts. Most such indexes cross-reference the entries by geography, type of grants given, and fields of interest. Two very good such sources are: The Foundation Directory and the Taft Foundation Reporter.

Because foundation research is relatively inexpensive and not too time consuming, it may be wise to compile a list of foundations to approach from the directory. Pay strict attention to the restrictions and guidelines. You may want to call or write for the foundation's annual report before applying. If they do not respond they may be trying to tell you something.

Approaches should follow the guidelines closely. The main reason requests are refused are:(2)

1. Bad timing - wrong time of year, or inability to disburse additional funds.

2. Too many requests at a specific time or in a specific area.

3. Wrong purpose - the foundation's purposes may be specific and it cannot disburse money which does not fit.

4. Wrong person or organization making request.

5. Ineffective approach or presentation, letters, reports, budget.

Government Sources

The best methods for obtaining additional government funding are to either lobby for more of the funds you now are receiving or to keep in close contact with key persons in the various government entities with which you are involved. Clipping services and careful reading of reports are also helpful, but you can get early information from the

right individuals. I strongly suggest that you cultivate them.

Other Donors

If the amount of money you wish to raise is small, if the cause for which you wish to obtain support has limited appeal, or if you live in a small community, there are other sources you might consider:(1)

1. Wealthy Individuals

2. Local Branches of Major Companies

3. Smaller Businesses

4. Fraternal or Social Clubs

5. Special Events

One word of caution about special events is in order. It is very easy to pay almost as much for the theater tickets, the wine and cheese, and/or dance band as you take in. In fact, without a stringent budget, scores of volunteers, and perfect weather, you can actually lose money.

The Corporate Milieu

The growth of corporate support for the public good is an old idea that has received increased attention since the cuts in social and health program funding of the early `80's. While there is undoubtedly potential for support from the private sector, business, too, has some severe financial limitations. Businesses would have to increase their giving from approximately 1% of pre-tax earnings -- the current figure -- to 15% to fill the gap left by the government's cuts made in the early years of this decade.(3)

Therefore, it is very important to closely match what you wish to accomplish with the objectives of the businesses you approach. Adam Smith said in 1776, "Man has almost constant occasion for the help of his brothers, and it is in vain for him to expect it from their benevolence only. He will be more likely to prevail if he can interest their self-love in his favour and show them that it is for their own advantage to do for him what he requires of them." This mutuality of interest is the key.

In 1955, there were only 15 company policy statements on contributions.(4) Since the late 1960's, there has been a rapid increase in policy directed giving. Many companies now clearly state for what purposes they will give money, and this can often be found by either obtaining their annual reports or calling or writing to the heads of their contributions committees.

For many companies, there may be a rather "broad area in which economic and social concerns are consistent with one another."(3) In addition, in the mid-1980's, because of the public attitude toward business resulting from political action committees, mergers, and acquisitions, public affairs executives say they will have to devote more time first, to supporting social, economic, community, and cultural institutions, second, to developing understanding and respect for their companies; and third, to developing understanding and respect for business in general.(5)

So now you know that some corporations might be interested in your program, integrity and good work. How do you get the money? "The easiest part... is actually asking for the money. The hard part is getting your organization in shape, communicating an organizational purpose that meets a need, and developing a program that will identify, inform, and involve those whom you feel are most likely to support your particular cause."(1)

What are the specific steps you should take to successfully raise funds? Keep in mind that this is definitely an art, not a science; and fundraising requires that the process be much more organic and creative than mechanistic.

STEP 1: Clarify exactly what you want to raise money or gain support for. Hone your program, its objectives, intended outcomes, audiences, time lines and costs. You will need to be very specific. The process may take time and the involvement of a variety of people. You might want to test a good draft with an acquaintance who is a business person to get an idea of how realistic it may appear to the business community.

STEP 2: Put together a small but somewhat diverse group of colleagues and one or two "outsiders" who know your operations and objectives. Brainstorm -- ask and answer -- without eliminating responses except where indicated -- the following questions:(1)

Question 1 - Who is being served by my organization? Clients? The community?

Question 2 - Which of those most directly served might be able to lend some support?

Question 3 - Who has direct or vested interest in the kinds of people we are serving? If it's a day care center for which you wish to raise money -- what about manufacturers of children's clothing or toys? Develop a list of businesses that have your clients as their market. It should be a rather long list.

Question 4 - Which of these businesses are in good financial condition? Research this with volunteers, read printed reports, look at The Wall Street Journal. Shorten your list.

Question 5 - Can you get information on their funding policies? Send for annual reports; communicate with their corporate contributions committee. Shorten your list again.

Question 6 - Do you have a contact in that company or can you get one? Shorten your list again.

Now, you should have a list of companies from which it would be reasonable to expect positive responses. You may add to or subtract from this list as the campaign progresses.

STEP 3: Now, prepare a complete written proposal. It should be letter perfect and neat. Remember you are approaching the establishment.(1) It should include a brief, clear statement of objectives written without jargon. A financial statement of your organization and an annual report are desirable. The annual report should contain a history of your organization, its specific activities and achievements, past sponsors, names of your board or volunteer support group and key staff.(1)

Finally, include a concise funding proposal that outlines why the project should be done; how; how long it will take; how much it will cost; who will do it; and the end product, impact or result.(1) The entire written approach should not look expensive but professional and well organized.

STEP 4: Set up a fundraising team of staff and volunteers. The volunteers should be carefully selected to maximize impact or provide key information. They should be given very specific tasks, remembering that their time is limited. Do not forget to include finance, legal, and business people. The last are crucial for contacts. Try to get people with clout and commitment to your cause.

STEP 5: Determine the best way to approach your list of prospects with the people, resources and time you have available. Young lists three basic approaches:(1)

Approach 1 - "Sneaking in through the front door." Try to see the president, him or herself. Call the president and try to engage him or her in a three-minute, critical explanation of your purpose. Be "up" and prepared. The first sentence is crucial. Work through his secretary until you have that conversation. Your purpose is to set up a meeting with him. He may designate a subordinate, but try to see him.

Approach 2 - "Regular route." This is through the corporate contributions administrator. If you don't know who this person is, get the name from the switchboard operator. Once you reach the administrator, ask for a meeting. Get a meeting date established before you send a proposal. If a meeting cannot be arranged, a brief proposal and letter may be sent.

Approach 3 - "Old buddy route." Use contacts provided through your volunteers, friends, former school mates, or any other way to obtain an introduction within the company that will result in a meeting.

Above all, remember that this is a very fluid set of approaches. You may combine one or two of them. If it is not appropriate to go in one way, try another. Don't give up until it is absolutely clear that there is no interest in your proposal in the company.

STEP 6: Always follow up ever approach, successful or unsuccessful. Thank the individuals contacted for their time and consideration. Keep them informed of the progress of the campaign. Put them on your mailing list. And if they do fund you, be a good steward of their funds with reports on the progress of the project. Remember, you will want to approach them again.

Summary

In summary, remember some key points about fundraising -- corporate fundraising in particular.

Make sure timing and topicality of your cause are right. Try to find the right person in the funding organization through whom to route the request -- network like crazy. Save your best resources for your best projects -- you can only go to the well so many times. Get meetings set up, bring the right mix of people to them, and dress appropriately. Develop a clear, professional, brief "sales pitch." Be prepared to put enough resources into your campaign. Getting the first donation in any campaign is the most difficult. Above all, persevere and keep up your spirits.

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Public Sector Resources for Financing Nutrition Services

Claude Earl Fox, MD, MPH

Agnes W. Hinton, RD, MS

My challenge is to assist you in thinking of various public sector resources which you might use to finance nutrition services in your area. First we'll discuss various funding sources which should be explored. Then we'll discuss ways to successfully utilize available funds creatively to make nutrition a public health priority. This presentation is based upon our experiences, discussions with administrators and nutritionists in other areas, and information in the literature. We have by no means utilized all the resources I'll be discussing for funding nutrition services in Mississippi.

First let's look at various public funding sources which might be utilized. The most obvious and the one supporting the majority of public health nutrition positions in the United States is WIC. The WIC regulations issued in 1985 still contain the requirement that 1/6 of administrative funds be spent for nutrition education, a victory for nutritionists. While I'm thankful for the funding WIC has provided to expand nutrition services, I caution you not to feel you have a comprehensive nutrition program if your only funding source for local nutrition services is WIC. While we do not advocate WIC clinics or WIC nutritionists, remember that WIC funds are closely audited by USDA, and auditors do not look lightly at personnel supported exclusively by WIC spending a significant amount of time in other areas. Thus, without a diversity of funding sources, segments of the population at nutritional risk, including the MCH clients not categorically eligible for WIC, chronic disease patients, the elderly, and the general public in need of health promotion, disease prevention may not receive needed nutrition services.

The next most commonly used funding source for nutritionists is the Maternal and Child Health Block Grant, formerly Title V funds. In our state we use MCH block grant funds to partially support our district nutrition positions, our Director of Nutrition Services, and two nutritionists who work with the Children's Medical Program (our name for Crippled Children's Program). Some states have maintained Maternal and Infant Care and Children and Youth Projects supported by MCH Block Grant funds, and these should include a nutrition position. There is a set-aside at the national level of 15% of MCH Block Grant funds for SPRANS projects -- Special Projects of Regional and National Significance. Many of these projects should include a nutritionist; for example, the current guidelines specifically mention promotion of breastfeeding as a priority area to be addressed in the proposals. MCH funds also support nutrition positions in Schools of Public Health, Pediatric Pulmonary Centers, Adolescent Centers, and other

special training projects; Neonatal ICU's and High Risk Prenatal Care.

Another federal health program which could be a potential funding source for nutrition services is the Family Planning Program. For example, North Carolina supports several nutrition positions from these funds. While in Mississippi, we've not funded nutrition positions from family planning funds, we have purchased both professional and patient education materials on nutrition and family planning and with the advent of a new reporting system for nutritionists we'll be monitoring the amount of time they're spending in family planning in light of future funding. Special funding may be available from sources such as Adolescent Parenting or Family Life Grants, Supplemental Security Income, dental health programs, lead screening programs, migrant health grants and primary care funds for Community Health Centers. The National Health Services Corps still supports a few nutrition positions as interns or special assignees. With the predictions of an upcoming physician oversupply your association should be actively advocating for the re-establishment of nutrition as a priority for support in the NHSC. The Appalachian Health Program, jointly administered by the Appalachian Regional Commission and the Public Health Service, can support nutrition services. Indian Health Services supports nutrition services for this special population. Programs administered by the mental health agency may contain funds for nutrition positions. Other related programs include the Developmental Disabilities Program, Child Development Centers, University Affiliated Programs or Centers or Facilities. These programs offer valuable resources for staff training, as well as providing direct services.

The Medicaid program may be a funding source for nutrition services depending upon what your state plan includes. In some states nutritionists bill Medicaid when they counsel someone participating in EPSDT. Some states have built the cost of nutritional assessment and counseling into their EPSDT basic cost. If adequate records are kept of the amount of time nutritionists are spending in EPSDT related activities, then the EPSDT earnings could be used to support nutrition positions.

Let's address a different population segment -- persons with chronic diseases such as diabetes or hypertension. The Preventive Health Services Block Grant includes a set-aside for hypertension programs. These funds can appropriately pay for nutrition positions, as well as purchase patient and professional education materials and support training for professionals on the relationship of nutrition to the prevention and treatment of hypertension. Funds are available from the Centers for Disease Control for Diabetes Demonstration Projects which can fund similar activities related to diabetes. Funding can be shared from these programs, as many diabetics also have hypertension. We fund a state level nutrition position six months from hypertension funds and six months from diabetes funds. Louisiana has received some funds from the tuberculosis program to support nutrition positions.

The Home Health program can be a funding source for nutrition services. While nutritionists are not directly reimbursable under Home Health, their services can be charged as an administrative expense. We have recently funded nine nutrition positions from Home Health funds, one for each of our health districts. Legislation is pending in the national Congress to make the services of a registered dietitian directly reimbursable. As it is doubtful that the Home Health program will be allowed to continue without a cap on administrative expenses, it is important for the future of nutrition services to home health patients that such legislation be passed. As the impact of DRG's pushes sicker patients into the home health system at an earlier and earlier rate, nutrition services are increasingly needed in Home Health to deal with problems such as enteral and parenteral nutrition as well as chronic diseases requiring dietary modification. Medicare has approved reimbursement for diabetes out patient education including the services of a registered dietitian in some states, including ours.

Another federal program for the elderly is the Older Americans Act. In addition to directly funding full or part-time nutritionists to work directly in programs funded by OAA, the state health agency might contract with the state agency administering OAA for reimbursement of services provided by nutritionists.

Health Promotion, Disease Prevention activities are needed by the whole population. Funding for nutrition services in this area may come through Preventive Health Services Block Grant funds through the Centers for Disease Control. Other funding sources include users fees and contracts with industry.

Other federal programs which could be used to fund nutrition activities include the Commodity Supplemental Food Program, Nutrition Education and Training, and the Child Care Food Program. These programs are usually administered by another agency, but contracts might be negotiated for public health nutritionists to provide services for reimbursement for other programs. The Expanded Food and Nutrition Education Program, the Head Start program, and the Food Stamp Program, are other areas to explore for contracting.

Public health nutritionists must be aware of the development of new programs in their areas which might become funding sources. An example of this is the Home and Community Based Services waiver under the Medicaid program. A 1983 presentation on nutrition coverage under Medicaid reported that two states, New York and South Dakota, were providing dietary/nutritional services under a Home and Community Based Services waiver involving provision of enteral or parenteral therapy. The services of a registered dietitian can be directly reimbursed under this waiver if it is included in the State plan. Recent legislation made the services of a Registered Dietitian directly reimbursable for hospice care. These are examples of programs which can be expected to grow, and which should have a nutrition component.

Appropriations from state, county, or city funds are an important source of funding. Fees for some services could be established. Remember that some charges would be covered under third party reimbursement if they were properly submitted. Voluntary health agencies such as the March of Dimes, American Heart Association, or American Diabetes Association may contribute funds towards inservice training, materials development, nutrition risk screening, etc.

This is by no means an exhaustive list of all funding sources, but hopefully it has helped you think of at least one which you could attempt to utilize in your state or area. But the knowledge alone of a funding source does not translate into securing needed funding.

The first suggestion is to be creative and imaginative. Assess where your unmet needs for nutrition services lie, and then develop a strategy to meet those needs, considering all available resources.

Avenues such as multi-contractual funding should be explored. Agencies that cannot afford a full-time nutritionist or have programs that call for part-time consultation may be able to share personnel with other state, local, or private organizations. For example, a county health department might share a public health nutritionist with a community clinic or a health maintenance organization. The services would be arranged through interagency agreements which specify shared salary responsibilities or reciprocal in-kind payments. Contractual arrangements are also helpful in circumventing ceilings or freezes on numbers of state employees. There may be opportunities for contractual arrangements with university faculty for provision of services without reimbursement in return for the use of your facilities as a field site.

Another suggestion is to remain creative enough to see good in what may appear to be a bad situation. I'll give you a specific example. Several years ago the Mississippi State Department of Health was served a court order by a federal circuit judge instructing us to inspect the food service and sanitation in county jails housing state prisoners. We learned in December that inspections had be completed before the end of that month on 62 jails across the state. The only guidelines were that the food should be nutritionally adequate, wholesome, and provide at least 2000 calories/day. Quite a task to be accomplished in the month of December, with no special staff to do so! Our Director of Nutrition Services, working with the Director of the Division of Sanitation, established guidelines for the inspections and instructed district and local nutritionists in performing them. As we established these plans, however, we made it clear that we could not do this with personnel paid from MCH or WIC funds. The job got done, and by the next fiscal year funds were found under Preventive Health Services Block Grant funds to establish a Jail Inspection Unit, including a sanitarian and a registered dietitian. In this current fiscal year, the position was switched to state funds to provide greater stability and flexibility. The Registered Dietitian is now spending 60% of her time in jail inspection and 40% of her time working with Day Care Licensure. We hope to shift the focus of the

position to more day care and less jail inspections as we move to more regional prison facilities. thus, a bad situation ultimately resulted in state funding for a nutritionist working with the jails, and also with the day care centers.

Another suggestion is to sit in on budget conferences. You may discover funds which could fund at least part of a position. There is no cookbook approach which will automatically assure that you will have ten new funding sources for nutrition services by next year. As with most issues, you need to discover who the players are in your area who can help you gain access to financial decisions. Be alert to new programs or new grants, offer to assist in developing those, or submit a written proposal to the program manager showing how a nutritionist would benefit his/her program. Learn to work with other agencies. Sometimes you will have to provide services gratis, and then begin to charge for services as their value is demonstrated.

You need to assess the unmet needs for nutrition services in your area, and then develop strategies to meet those needs.

I'd like to close with a quote from the publication, Nutrition Services in State and Local Public Health Agencies:

> "The key to success in developing financial support for nutrition services is to remain flexible. A variety of funding resources can be integrated to support nutrition services. A comprehensive, coordinated program can result provided that personnel are assigned according to program priorities, and that they are not unduly restricted by categorical requirements. This flexibility does not preclude strict cost accounting by each funding source, but rather it allows the agency to take maximum advantage of available resources."

With a variety of funding sources you are more likely to be able to meet the diverse needs of your population. You are also less vulnerable to staff reduction when a program is cut, as most are at some time. This variety of funding also helps keep the focus of staff off specific programs and on the most important focus, the needs of clients.

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TURNING DATA INTO GOLD

Jeffrey R. Taylor, PhD

Perhaps we could also title this presentation, "Forming a Collaborative Relationship with Ceasar." What we as health professionals are attempting to do is translate our facts and ideas into action. Usually this action requires money, and money comes from your friend and mine, Ceasar. And as we know Ceasar is a vain and glorious creature -- so some of our strategies are appeals to vanity -- but empirically they seem to work.

How do "knowledge power" people hook up with "position power" folks? By effectively learning how to use their "knowledge power".

The definition of power which I am using in this context is a little bit different than you might expect. Coercive power and purchased power are but two of the forms of day to day power which we understandably hate to be the victims of and shrink from using on others.

The type of power I am referring to is simply the power to persuade decision-makers with money to your point of view. This involves not only obtaining the facts or data from research-evaluation activities, but in assembling, packaging and selling this information in ways that can be understood, accepted and acted upon. This process of persuasion involves people and communication. My purpose is to sensitize you to issues which seem to strongly bear on the success of translating data into gold. These issues are four:

1. Defining data which will speak to several layers of audiences -- from the service project level to funders.

2. Determining key audiences -- especially those decision-makers with money and the specific information that might be persuasive to them.

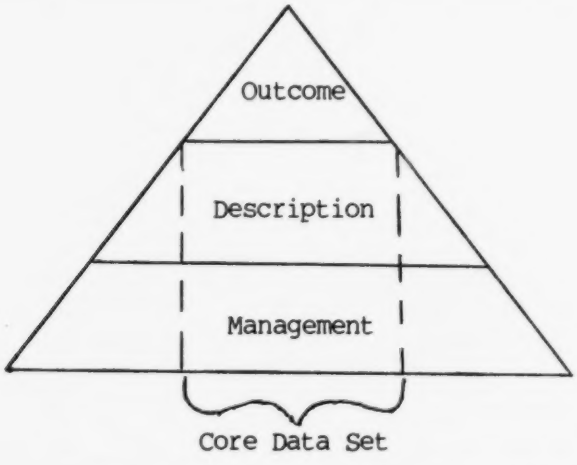
3. Formatting the information to be presented.

4. Managing the communication/persuasion process.

Core Data

Typically, there are three levels of information which are used by decision makers at various levels within the health care system. Many of you may be familiar with the data pyramid I am about to briefly describe.

DATA PYRAMID



At the base of the pyramid, local service workers are usually most interested in management information which is timely and useful in running the field operation. Appointment schedules, efficiency indicators, case management information and tracking systems are among the many types of programmatic information collected. Increasingly, this program data is also being linked to financial and budget information.

At the second level is the unduplicated "head count". Service output reporting is essential and is especially desired by funding sources such as the State Health Department or other sources of grant funds. Descriptive measures indicate the target population being served, usually provide excellent demographic statistics and count the number of clients through the turnstiles.

But increasingly, outcome or impact information is desired at all levels of government (federal, state and local) and by private, voluntary and foundation systems. In the old days, it was usually only the Federal Government and university faculty who were interested in outcome information. This was largely because the well-funded categorical programs were created and funded out of Washington. As decision making and funding support shifts to the state and local levels of government, this historical pattern is changing. I think it is also changing because educational levels among health care personnel have improved dramatically over the last 20 years. Also, tight resources lead to more questions which run to the heart of the matter -- "Does this health program or intervention alter health status or the health system in a meaningful way?"

The dotted line running through the pyramid simply illustrates the concept of the minimum data set. If at each level of evaluation

we define the least amount of information needed, then we are able to make decisions on what data is collected and shared among the various levels of policy interest. Defining the core data set is akin to making decisions on what information we will publish broadly. With the possible exception of fighting over formulas to distribute funding, arguments on core data sets are the worst. These conflicts must be resolved, however, if important evaluative information is obtained which can potentially be used to market the health program.

This process can be greatly assisted if clear and rational steps are taken in designing and evaluating the program. I wish to stress that you adopt a good framework for planning the evaluation so that it works. I also particularly recommend to you the text by Richard Windsor and others entitled Evaluations of Health Promotion and Educational Programs (1984).

Assuming that the core data set was developed and a good research, demonstration and/or evaluation effort was carried out with tangible end products in hand, the question arises, "How is evaluative information turned into gold?"

Target Audience and Format

Before information can be packaged and sold, one must have the very clear idea of what you are trying to sell. Determine your express purpose in preparing and packaging the information and make sure that purpose comes through loud and clear. For example, if you have determined that the audience for your information is the State Legislature, you must make it clear whether you are seeking a new state policy, continuation or expanded funding, or a law, rule or regulation. The formatting and presentation of the information is crucial and varies widely among audiences. In many cases, there will be multiple audiences and you must be prepared to provide a format which meets multiple needs.

We in the health professions like to produce reports. Short reports, long reports, highly complex and technical reports or others which could be read by those with a fourth grade education. There are several steps which can be taken to insure that a report will be read by its intended audience. Putting in the types of information desired by each audience is crucial to its being read. For example, legislators, if possible, would like everything on one page. They like to read transmittal letters and review lists of participants to see if anybody important is involved with the project. But legislative staff must have a substantive body in the report which will answer the detailed fiscal and programmatic questions which come up in committee deliberations. Media people like to have a "cut down" of the material in one or two pages which are often the sum and substance of the executive summary of a report. They then need to be able to use the table of contents to find backup material in case so-called "side bars" are written to back up the main story printed in the newspaper or given in two to three minutes over the nightly news.

In Michigan, we recently completed development of prenatal care as a basic health service in our state. It is our hope that over a two-year period all pregnant women in Michigan will have access to prenatal care. State payments will be made for those who cannot qualify for Medicaid, who do not have health care insurance and who fall below the WIC financial eligibility guidelines. In assembling information and data which could be translated into a legislative appropriation, we chose a two-tiered planning process. The first tier consisted of a 50-member Blue Ribbon Policy Group whose support was crucial to passage of the program in the Legislature.

This Blue Ribbon Committee was backed up by four technical work groups who conducted a needs assessment, developed program content and standards, designed the financial, legislative and administrative package and developed an outreach and awareness campaign. These standards include reimbursement for nutrition assessments.

In preparing data on the health status and health systems problems, we knew that several themes were of great interest to the Legislature, the news media and a wide variety of health groups. Accordingly, the themes of inadequate health insurance, infant mortality and the cost effectiveness of prenatal care were stressed in the development of the report. They were also highlighted in all materials which were disseminated. These themes were carefully substantiated and repeated whenever possible.

We also found that it is important to communicate information in a way that can be readily understood by the general public. Thus, we discussed the numbers of infants dying as opposed to long and detailed discussions over infant death rates. We stressed the number of excess infant deaths which we had suffered in Michigan when our current poor record of infant mortality was compared to earlier times when Michigan was an average state in terms of infant mortality.

We stressed the fact that up to three-quarters of our infant mortality problem was connected with the problem of low birthweight infants and we repeated the five factors of poverty, inadequate nutrition, unintended pregnancy, lack of prenatal care and substance abuse as contributors to the problem of low birthweight.

Statements of the cost effectiveness of prenatal care, such as, for every $1 spent on prenatal care, between $4 and $6 are saved in newborn intensive care costs was particularly persuasive to our cash-starved Legislature.

Thus, the data presented directly underscored the three "themes" we thought were persuasive. In fact, the state-funded prenatal initiative garnered $2.5 million in the first year and $5 million in the second year. More importantly the Governor in his State of the State address recognized the quality and impact of our data.

On the heels of our prenatal report, we also released one entitled, "Family Planning As A Cost Containment Initiative." On the

cover of this report, the terms "Cost Containment Initiative" overshadow the Family Planning context. Since family planning was thought to be much more controversial than prenatal care, the cost containment features were stressed as the dominant theme of the report.

All materials relating to the Family Planning Task Force and its report highlighted four essential questions which we wanted to answer. These were also questions which were on the minds of our Appropriations Committee members in the Legislature, the State Health Officer, and Family Planning Directors throughout the state.

By beginning our discussion in this way, we were able to provide data building up to the question "What is the total amount of money required to fill the gap in services and what is the appropriate share for state government to pay?" It is my feeling that no decision maker wants to get to the bottom line until the substantive issues are addressed. These substantive issues were laid out in a very forthright way in the report, strengths as well as weaknesses. Independent university-based consultants were used along with Task Force members to develop the underpinnings of new directions for family planning.

In the Executive Summary of the report, the questions as well as the answers were laid out in a crisp two pages. Cost benefits were summarized, the large gap in services dramatized and individual comparisons were made between Michigan, a large midwestern industrial state, to smaller states in the west.

Such comparisons are often the heart and soul of scientific advocacy as dispensed by such groups as the Children's Defense Fund. Ranking the states, cities and localities on infant death rates or inadequate prenatal care, brings a sense of wanting to do better among the poorly ranked groups. This is especially true when comparisons are made between places with high opinions of themselves and other places which are thought to be inferior.

Judge your own reaction to the following statement:

> The United States continues to lag behind other industrialized nations of the world, ranking from sixteenth to eighteenth on infant mortality statistics published over the last four years by the United Nations. Some of the countries ahead of the U.S. include Japan, Spain, Hong Kong, Canada, Australia, Singapore and Ireland.

There is profound sense of shame in our Nation when we come face to face with the great disparities in wealth and health status between the rich and the poor and, in fact, our country is often at its best when it moves to correct these inequities. It is our job to place in the most accurate and compelling way these disparities before the public.

As we have moved along, I have covered some aspects of the format of a Task Force style report. Any of these points can also be applied

to a program or research report covering a nutrition intervention program.

Reports, unlike books, are often in my experience, judged by their covers. I prefer a clean, graphics approach which is attractive and through its title, communicates important information, usually the theme of the report. In addition to the cover, there are four key parts of a report which should be present and placed in the front of the report prior to the body of the material. They are:

- The transmittal letter
- A brief Executive Summary
- A listing of recommendations
- The participants

Each of these four critical components should communicate essential information. The transmittal letter should not be dull and full of political "pap". It should be hard-hitting and specify the purpose for doing the report, communicate key process information and endorse the bottom line.

The Executive Summary should be no more than two to three pages and present the headlines in a logical buildup to the key recommendations. It is best if the recommendations are fewer than ten and all stand out like "sore thumbs". If you put 28 to 40 recommendations, it all turns to mush in the eyes of the reader. It is much better to bury an endless series of recommendations in the text of the report. For example, this material could become descriptive information supporting the main recommendations. Decision makers are not interested in your 43 point program to do anything. Even in ending world wars, leaders usually hold their number of points to five or seven.

The list of participants not only gives recognition for the people doing the work but also indicates to your audience the fact that you had some "heavy hitters" behind your effort. This is often much more saleable than the data itself because it establishes credibility and scientific and political legitimacy for the information communicated in the report.

As indicated earlier, the body of the report is for staff people, scientific colleagues and others who are serious students of the problem. The body of the report must substantiate, in every possible way, the earlier material. Staff people will read the body of the report and if you are drawing recommendations from inadequate data, you are likely to "go down in flames". This will not only affect the current dissemination effort, but also future reports put out under your name or your organization's name.

Marketing

In marketing and selling the information, it is important to establish the implementation chain and the work plan. Reports go

nowhere unless people take them and initiate conversation.

In the case of our Family Planning Report, we established a new statewide coalition to promote family planning interests. This group was formed out of the nucleus of the Task Force membership and is leading the persuasion effort in the Legislature. The Family Planning report called for a $5 million expansion in family planning services to assure that contraceptive and educational services would be available to all in Michigan who need and want them. The first year agenda calls for an increase of $2 million in General Fund expenditures and has received favorable action in the Michigan Senate.

The new Family Planning Coalition has several committees and has specific individuals assigned to work with various legislators. Part of their role is to stamp out any effort to communicate disinformation about family planning. Thus, all of the crucial communicators need to have read the report, know it in detail and be prepared to answer the tough questions.

The marketing and sales force must be prepared to stay in the arena of blood and gore until a decision is reached. In the case of the Prenatal Report, the Statewide Maternal and Child Health Council assigned a full-time lobbyist to insure that the report recommendations were carried out in the Legislature.

In conclusion, in Michigan, we found that legislators are very well educated and interested in the problems and information that you bring to them. They are also very critical audiences. In our State Legislature lawyers are now outranked by former school teachers and ministers. We also have a few university professors. They understand that we are moving into the information age, that dollars are limited and their priorities will need to be set, at least some of the time, on the facts.

In preparing those facts, you must have a solid evaluation design and then, place as much effort into packaging and marketing that information. The target audiences must include health professionals and agencies who are working with the affected population. It must also include decision makers and funders who can make or break your program.

Finally, the information must be suitable for use by the mass media. While television coverage is fun, it doesn't last long. It is suggested that your materials be put together to be useful to the print media, especially the newspapers.

This means press releases which highlight your data, one pagers which summarize your results and findings, and backup material which can be easily used to find substantiating information.

Print media people will always want to have knowledgeable contact people. Don't use front people who are smooth talkers but have no idea of the substantive details. Newspaper people are not looking for

media stars. They want hard information and will usually reserve the star status for known politicians who will comment on the report or others who are typically in the limelight.

While it is not known just how much of the public will read and consume information presented through the mass media, we know that legislators rely heavily on these sources. In general, they will attend to the issues which are covered in the news media. Thus, it is important when at all possible to have your information put together in a way that can be communicated in an interesting and lively fashion through the news media as well as scientific and professional circles.

I wish all of you the very best in turning your data into gold. For to do so, will mean an extension of much needed service improvements to all of our citizens.

CONCLUDING REMARKS

Association of State and Territorial Health Officials

Douglas S. Lloyd, MD, MPH

My official role is to bring you greetings from ASTHO -- the Association of which I used to be President -- and from the ASTHO Foundation, where I currently serve as Board Chairman. The ASTHO name continues to be a disaster, and we are trying to change it -- but ASTHO's leadership and ASTHO's leaders are something to be proud of. Our new president is Joan Leavitt, a health officer from Oklahoma and a real go-getter. She is the second woman to head the Association. Her predecessor was Kristine Gebbie who was a nurse -- the first non-physician to be President of ASTHO. Who knows how soon a nutritionist will take command?

First I would like to talk generally about the world of nutrition and the forces about to impact upon it. When I spoke to you a couple of years ago, I talked about the need to go beyond a service perspective. I'm pleased with the work you've been doing since then. I refer particularly to the collection of data in what has always been an extemely "soft" field, and to the beginnings of quantification and measurement of exactly what people eat and of the resulting biochemical changes.

It seems to me that these initiatives are part and parcel of a vast tide of change which is affecting us all these days... a tide which is certain to grow stronger, perhaps into a flood that will sweep away many of the landmarks of health care as we know it today. There is a synergism at work that is highly interesting. First, consider the enormous changes occuring in the way health care is being delivered.

Mostly because business will no longer tolerate the sky-rocketing costs of medical-care-as-usual, we have already seen Health Maintenance Organizations, such as Kaiser Permanente, and corporations, such as Humana and the Hospital Corporation of America, introduce health care delivery systems in strange new configurations. The structures are varied, but they seem to have one thing in common: size! They are huge, and because of that size, they have an enormous potential for data collection, data storage. data comparison.

The possibilities are very exacting -- and I predict that we are resting today on the threshold of the most exciting growth period that the science of nutrition has ever known. Because these corporations have an economic stake in preventing disease, they will give nutrition increasing responsibility, and because of the data resources they

have, you'll be able at last to speak authoritatively in areas that have hitherto been managed mainly by intuition and skillful guesswork.

The literature is going to come alive -- and as individuals, you'll have to work hard to keep up -- but it will be worth it, because your ability to sell nutrition sciences, to talk about what is good for people, depends so much on having the data to substantiate theory.

It is my belief that, in most cases, the market mechanism does work. When you think , about it, there are only a handful of categories that influence how we grow old and what diseases we get -- genetics, radiation, chemicals, biology. When we have identified and quantified more of the markers in our blood that have to do with ingested foods and chemicals, just as we now recognize such markers as hemoglobin, blood sugar and cholesterol, when we can associate disease with diet mathematically, then I feel we will begin to make quantum leaps in the directions of healthier Americans. The tool is the computer -- and it's here now. The data base must be large scale (not tens of thousands, but hundreds of thousands) -- and the new health businesses will soon have that too.

It's a competitive world out there. The new health care structures are going to view nutrition as an important competitive tool -- and the result, in my opinion, can only be a healthier citizenry.

I wish I had time to get into a correlary consideration of equal fascination, at least to me. That is: how much of nutritional services should be deliverd by government agencies, and how much privately? How much by the large, new entities I've been describing?

We have already seen corporations move in on areas that were traditionally reserved for government: to contract for correctional services, fire and safety, and certain educational programs. I don't think it is unrealistic to expect the same approach in nutrition. It's going to raise some very interesting challenges to all of us in the future.

One of these will be management, an extremely important topic which we also have discussed briefly. All of you who are involved in delivering a service or running a program know that you will never have the kind of resources you perceive you need -- and so you try to get the best out of what you have. That means management, managing resources, managing people, quantifying, identifying what you want to do and setting out a realistic plan to carry it out.

This past year I have put a great deal of time and thought into my new job as Chairman of the ASTHO Foundation -- and Chairman, I think, equates to "manager." I have been trying to tighten up the management of our foundation and give us a sense of direction, of where we need to go for the future, since clearly we see federal funding is going to decrease.

We are going to go to outside sources. One possibility is the sale of death registries to American Express or telecommunications systems. You may laugh, but that's one of the things we're talking about. There is no central way for large credit card companies to purge from their lists the names of people who have died... but those lists are available in state health departments. The idea raises some eyebrows, you can imagine how it was received when it was brought up to us two years ago. Nevertheless, we're clearly going to have to do some things differently. We are going to have to look at new approaches, to be good managers.

Unfortunately, all too often, we spend our time, not managing, but reacting to crises. The year I was president of ASTHO, for instance, was the year of the "killer muffins." Remember the "killer muffins?" -- the ones contaminated with EDB? This year it's AIDS -- and I don't for a moment deny the seriousness of either EDB or AIDS. My point is that we must not allow our health departments to be driven by these forces. To control these crises, we need to develop reliable data sources, we need some surveillance, and we need to be able to get information out, quickly and accurately.

I am very proud of the work ASTHO has done in this direction. We have a telecommunications system that links 40 states together with more coming on. For those of you who are computer conversant, you know you can literally turn around and tap two keys and leave a message on somebody else's desk all the way across the country. We used it, very warily, on the rapidly moving changes on the AIDS virus antibodies or HTLV-3 test and on EDB. We had not had, before the ability to send draft documents back and forth. We could never move fast and cohesively if we didn't. It's now a great way to send draft documents back and forth. Eventually we will be able to send a lot of our data back and forth on the system. It has a great potential for the future. Indeed, I consider TELNET one of the critical services of the future.

The crises in our lives have also caused ASTHO to examine and redefine its role with some key federal agencies. Two years ago, we began with the Environmental Protection Agency. A major recall was being issued on grain products -- and health officers were being asked to comment on a perceived health threat that supposedly had the potential for killing people. We knew a good deal more about EDB and its true risks, yet they talked to the agriculture commissioners, but they never talked to the health commissioners. That's changed! We have a good working relationship with the Environmental Protection Agency now.

In this last year, with the AIDS problem, we've recognized that our relationship with the Food and Drug Administration leaves something to be desired. Over this last year we've worked on trying to find a better relationship with the Food and Drug Administration. It raises some fascinating potential issues for the future such as the question of toxic substances in general.

As nutritionists, you are familiar with adulteration of products -- additives, preservatives, and the like. As the technology rapidly increases, we will be able to identify increasingly small amounts of chemicals in foods that shouldn't be there.

The question for nutritionists is: can we develop a toxic epidemiology speciality that is effective in educating the public, not about trace minerals, but about these trace contaminants -- about their true health significance? It's going to require a whole new field of expertise in nutrition that I don't believe has yet evolved.

There are a couple of things that I was asked to touch on. One is the question of the health officers' perspective on WIC and nutrition in general. We're clearly in a period of time where pragmatism tells us that WIC is driving a lot of concern on nutrition. The programs that have been getting a lot of our attention are ones that are either perceived to be in crisis by the public or where there are large amounts of funding in transition -- ones that are rapidly increasing or rapidly decreasing. We reassessed many of our committees and we've talked seriously about disbanding the WIC Committee. One of the reasons that we did not was because of the strong feeling of many members of the Executive Committee that we needed to work towards some source of contined funding. As we look at this, I think we have to be more clear about where we target our funds. That is going to be critical for the future.

As health officers, we will continue to work with our WIC Task Force (which we are in the process of re-establishing). And we will continue to work with nutritionists. But I don't want to give you the impression that we're necessarily going to be accepting the existing system, as we have in the past. It's a different time out there. As we look at WIC and MCH, and many of the programs to serve women, infants and children in general, we are going to recognize that the states have to have the flexibility to target these funds in a better way.

Many states are doing some very exciting things with the 1990 objectives. ASTHO continues to be very interested and involved in where that is going, to make mid-course corrections. But, in most health officers' minds, the crisis of the moment very often takes a lot more time.

Part of the difficulty that we have is we institutionalize some of these changes. As you identify your goals for your individual states, how do you make it happen? How do you get things to change to carry out these goals?

You've had discussion on the Model Standards. We have taken the position that rather than having model standards for each individual profession, occupation, discipline, and interest -- we, instead, try to say to individual groups: "These are the model standards. You should take them and look at how you can apply them to your particular discipline and write your own objectives, state objectives that are

possible for you to carry out." And then, of course, you should try to sell them to as many people as possible.

There was a question about resolutions. We get a lot of resolutions. We used to spend a lot of time running through resolutions. We have now tried to reduce the number of resolutions that come into us. We've tried to discourage the more global, well-meaning, "in-favor-of" type resolutions, especially if we have already set a policy -- for instance, being for breast feeding. Instead, we prefer to take a few subjects and develop some position papers. We value your input. Is there a direction that you wish us to take, a specific program? What we do not want to do is go back to passing resolutions with lots of whereas's, with very good intentions with very few results. Thus, we're asking all of our affiliates to be more focused. If you've got some things that you feel we can help you on, let's try to put together some short draft position papers on the direction you wish to go and have some dialogue with members of the Executive Committee, the President, and the Association. Try to focus on what we should do with it. I want to say this up front so that we don't get into the year and you send a half dozen resolutions or so and find out that only one or two were adopted.

Association of State and Territorial Public Health Nutrition Directors

Susan B. Foerster, RD, MPH

This conference has provided an addictive taste of the information and expertise that might be assessed for program purposes by states and localities. But the key is in the networking, seizing the opportunity. I have noted that, along with the questions, some of the "how-to" answers are to be found in our own ranks -- in the university faculties, the localities and the state bureaucracies. The challenge to us will be to pool our know-how to create a multipurpose system of data that includes outcomes, activities and costs in a useable format.

Another theme is follow-through. Probably we all empathized with speakers who described how they sat for hours with their calculators trying to use the data. That was after having spent hours collecting data in the first place! Those hours were excessive because 1) the data tables were not originally produced in the most useable format, 2) the data were not necessarily subjected to appropriate statistical analysis ahead of time, or 3) available information processing technology, e.g., various software packages, were not used. Probably the other major preventable problem is that we ourselves often fail to budget for the amount of time required to plan for and work with the data.

A third theme of the Conference has been that of seizing opportunities. To obtain resources, it may be easiest as part of a new program, rather than later when it would require redirection away from an already-vested interest. Such new opportunities might include worksite risk reduction, health promotion for the elderly, diet and cancer, toxins in the food chain, or any other area which is seen as a problem within the agency. Again, since we're not all experts in everything, we need to know whom to contact for technical assistance so that we can provide accurate consultation as to doing the right thing at the right time in the right place. Again, data!

Association of Faculties of Graduate Programs in Public Health Nutrition

Mary Nelle Traylor, RD, MPH, MS

This has been a most stimulating conference for all of us. Having an opportunity to meet with our colleagues with common interests is critical to the process of sharing ideas and information to improve both graduate programs and agency programs. We have shared ideas on using data that we can take back to our respective work sites to strengthen our programs. To facilitate progress, faculty need to network more with their colleagues in statistics and epidemiology, so that both our graduate education and our continuing education meet current needs.

We talked about some of the neglected data that are available. I do not know how many of you have seen the Report of the Workship on "Training Nutrition Personnel for Public Health Programs -- Needs, Issues, and Directions," held in Washington in February, 1984. There are some interesting points in the papers included, but you may want to give particular attention to the recommendations. One of the recommendations for continuing education was to improve the training of nutritionists in epidemiology and/or epidemiologists in nutrition. Skill in the application of epidemiological principles is increasingly important. Faye Wong reminded us that we learn from working with our colleagues in epidemiology. This applies to both faculties and agency personnel. I audited an advanced course in epidemiology this Spring. It had been a long time since I looked at the academic side of epidemiology from the epidemiologist's perspective. I recommend both course work and collaborative activities. A resolution to develop our knowledge and skill in epidemiology is something we want to take back with us.

On both national and state levels, we need better plans for sharing information of common interest. We certainly have grown in numbers over the years that I have been in Public Health Nutrition. (It was about 20 years ago when I came to my first meeting of the Graduate Faculties at Chapel Hill.) Our increase in staff and progress in programming have been tremendous. This increase in numbers contributes to the need to improve networking within this group of agency and university representatives as well as with other groups. We need to keep our communications open so that we are aware of current priorities as we work toward common objectives.

Faculties rely on their colleagues in the agencies for sources of data to use for case studies, for student projects, and for research projects. In our work group, we heard some good ideas for projects that could be mutually helpful. Often universities can supply re-

sources for applied research projects to improve methodology so that we have better data bases.

For agencies to have the appropriate staff needed to achieve the nutrition objectives for the nation, we must recruit students and prepare practitioners who are equal to the task. Continuing education is indispensable to the process. This meeting has been an important step in that direction!

Division of Maternal and Child Health/PHS/DHHS

E. Ann Prendergast, RD, MPH

This conference has succeeded in bringing together nutritionists from state, local, federal, and academic positions to explore data needs in regard to the Objectives for the Nation, as well as for reacquainting ourselves with some of the national data resources important to nutrition program planning and evaluation. The emphasis of the nutrition objectives is to improve health on a national level. We all must play a part in this if some of the objectives are to be achieved.

As I listened to the presentors, I was reminded that we all have to use our educational background and experience and apply the public health sciences of epidemiology; statistics; administration. We must appreciate the special relationship of the environmental/behavioral effects on nutrition and health. These are basic to our mission with regards to data management.

We have heard from the National Center for Health Statistics about their current data sources in addition to the Health and Nutrition Examination Survey. They brought us up to date on their status, possible uses, strengths, weaknesses, and availability as source data. Staff of the Centers for Disease Control have discussed the national surveillance systems currently in place, and their reliance on good reporting data from state and local health services. The use of marketing methodology in the development of data on the risk reduction programs opens up another method to utilize current information recognizing the importance of careful statistical methodolgy. The relationship of the USDA Food Consumption surveys to achieve some insight into eating and buying patterns of selected populations offers another needed resource. The question of "norms" against which to measure funding has been raised, as has base line data to measure program trends. It is this area that also offers special challenges to those who will answer the question: How healthy are we as a Nation?

This meeting design represented considerable planning and discussion from representatives of the Association of State and Territorial Public Health Nutrition Directors, Association of the Faculties of Graduate Programs in Public Health Nutrition, and federal resources. It is our plan to provide funding for these continuing education events. The context will depend on expressed needs from the field to enhance practice and accountability. Health Resources and Services Administration, D.H.H.S. was pleased to provide funding to assure the deliberation of these groups. We look forward to continuing this effort. Our regional nutritionists will continue to be available as consultants for follow up sessions in the states, as well as the Health Resources and Services Administration, and Public Health Service staff from the various agencies represented.

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